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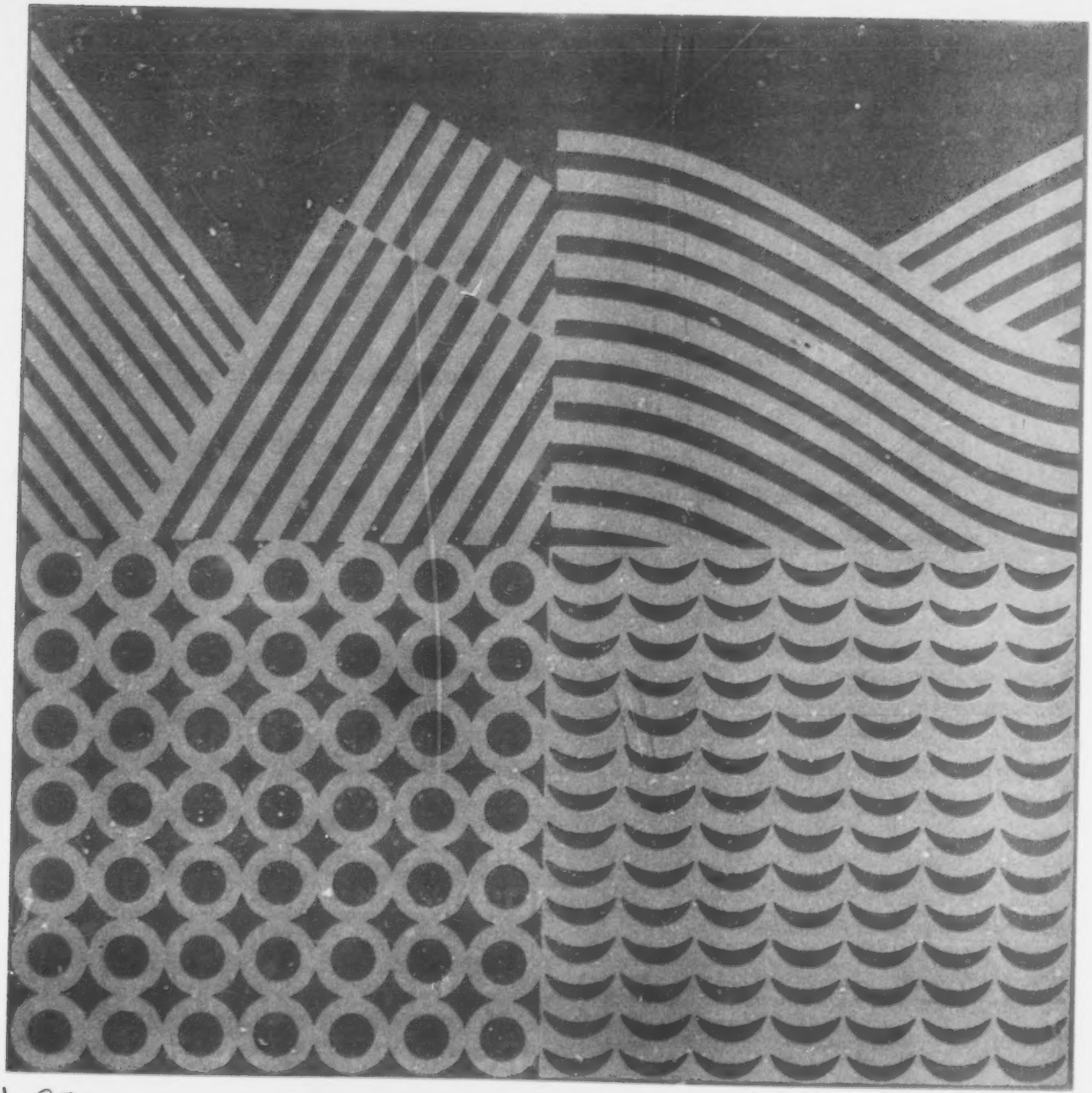
# Red Rim, Wyoming Petition Evaluation Document/ Environmental Impact Statement

Final

Comments and Responses

522 SMCRA Evaluation
OSM-PE-5
and Environmental Impact
Statement OSM-EIS-12

U.S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement



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U.S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement

**Final**

# Red Rim, Wyoming
# Petition Evaluation Document/ Environmental Impact Statement

## Comments and Responses

522 SMCRA Evaluation OSM-PE-5
and Environmental Impact Statement OSM-EIS-12

October 1985

Type of Action: Administrative

Prepared by the
U.S. Office of Surface Mining Reclamation and Enforcement

Jed D. Christensen

Acting Director

READEX FICHE best copy available

This volume of the final "Red Rim, Wyoming, Petition Evaluation Document/Environmental Impact Statement" is divided into two main sections: "Written Comments" and "Public Hearing." The "Written Comments" section generally includes letters received in response to publication of the draft petition evaluation document/environmental impact statement (PED/EIS). The "Public Hearing" section includes three subsections: (1) "Written Statement of Public-Hearing Testimony and Post-Hearing Comments," (2) "Public-Hearing Testimony," and (3) "Written Comments Submitted at the Public Hearing." The "Written Statements of Public-Hearing Testimony and Post-Hearing Comments" subsection includes written statements, submitted to the Office of Surface Mining Reclamation and Enforcement (OSM), the Wyoming Environmental Quality Council (EQC), or the Wyoming Department of Environmental Quality (DEQ), prepared by and summarizing the public-hearing testimony of certain persons who testified at the public hearing. This subsection also includes written comments submitted to OSM, Wyoming EQC, or Wyoming DEQ after the public hearing by persons desiring to clarify or supplement their public-hearing testimony, to refute the testimony of other persons who testified, or to provide information requested by OSM and/or Wyoming EQC at the hearing. The "Public-Hearing Testimony" subsection includes excerpts from the transcript of public-hearing testimony given by those who testified at the hearing but did not submit a written statement of that testimony. The "Written Comments Submitted at the Public Hearing" subsection includes written statements submitted by those persons who attended that hearing but did not testify.

OSM's interdisciplinary team members have responded to the substantive written and oral comments received from the public. On the following pages, substantive comments are bracketed and assigned uppercase letters in alphabetical order; the team's response to a given comment faces that comment on the same page. If a comment demonstrated the need for revision, the team revised the text of the PED/EIS.

This PED/EIS does not address comments from persons who expressed concerns about the fence rancher Taylor Lawrence (owner of the majority of the private surface within the petition area) erected on the petition area. The fence prevents pronghorn from entering portions of the pronghorn critical winter range on Red Rim. It became a point of much local and national newspaper coverage during the severe winter of 1983-84. In April 1985, in response to affadavits filed by the petitioners requesting enforcement of the unlawful Inclosure Act of 1885, the U.S. Attorney filed a complaint in Federal court against Mr. Lawrence asking that this fence be declared illegal and that an injunction permanently removing it be issued. The affadavits alleged that the fence unlawfully enclosed about 10,000 acres of Federal land. Although the fence is significant and controversial, it is not at issue in the National Wildlife Federation/Wyoming Wildlife Federation petition to designate Red Rim unsuitable for surface coal mining operations. Therefore, the issues of concern relative to the fence are not within the scope of this PED/EIS and are not addressed here.

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# WRITTEN COMMENTS

# A. FEDERAL AGENCIES

**United States Department of the Interior**

Bureau of Land Management
Wyoming State Office
P.O. Box 1828
Cheyenne, Wyoming 82003

Mr. Allen D. Klein, Administrator
Western Technical Center
Office of Surface Mining
Reclamation & Enforcement
Brooks Towers
1020-15th Street
Denver, Colorado 80202

Dear Mr. Klein:

Attached (Enclosure 1) are our comments on the Draft Red Rim, Wyoming Petition Evaluation Document/Environmental Impact Statement (PED/EID). We are also submitting a written statement for the official record (Enclosure 2).

Sincerely yours,

Hillary A. Oden
State Director

2 Enclosures
Encl. 1 - Comments
Encl. 2 - Statement

The written statement of the testimony presented by Mr. Mike Karbs at the public hearing (enclosure 2 of your letter) is reproduced and responded to in the "Written Statements of Testimony Presented at the Public Hearing and Post-Hearing Comments" section of the PED/EIS.

Wyoming Bureau of Land Management

Comments on Draft Red Rim, Wyoming
Petition Evaluation Document/Environmental Impact Statement

GENERAL

A The draft PED/EIS has not fully rectified the faulty assumption that the mitigation measures identified by BLM are not "requirements". The analysis of the alternatives still appear to reflect unrestricted surface mining and related activities over the entire area of the Red Rim Tract and, thus, impacts appear to be excessive and unrealistic. It appears that this has generated such a degree of detail and emphasis on the site specific Red Rim tract that the perspective of insignificant cumulative regional impacts is overshadowed.

B We reconfirm the statements in our August 22, 1983 letter (Appendix I-5), emphasizing that the identified mitigation items in Appendix J are "required", whether by BLM as lease stipulations or by OSM and Wyoming DEQ as conditions for mine plan approval and permitting. In the course of preparing the final PED/EIS, we request that you assure the identification and analyses of impacts have taken the required mitigation into full account.

SPECIFIC

C II-3 We question the Wyoming Game and Fish Department (WGFD) statement that the Muddy Creek and Red Rim critical winter ranges are already above carrying capacity.

The matter of carrying capacity of the antelope critical winter range is a pertinent point and, if the WGDS has reliable data, it should be included and considered in the final PED/EIS. Perhaps the most critical threat to the well-being of the Baggs antelope herd is excessive animal numbers, rather than the proposed coal development in the Red Rim Tract.

D II-12 We disagree with the statement..."(Grasses)...are poorly represented by the number of species present." Since six grass species are immediately listed as "dominant" to the site, and five of them are desirable (decreaser) species.

In addition, we do not agree with the statement..."The cover values and productivity of the grass species on the Red Rim site are far less than for areas in excellent range condition...." This statement implies that the Red Rim site is in poor range condition, which our range survey data does not support.

E IV-20 Another important factor influencing pronghorn production is:

The condition of the critical winter range, its actual carrying capacity and its capability to support additional (displaced) antelope.

Prior to publication of the draft PED/EIS, BLM submitted two legal descriptions of what it called the "pronghorn no surface occupancy area" to OSM. However, in fact, these two descriptions, which were intended to describe a single, definite area, did not exactly describe the same portion of the proposed coal lease tract. These differing descriptions resulted in considerable confusion regarding the mitigation requirements identified by BLM for the proposed tract (appendix J). Owing to this confusion, alternative C1a (designate as unsuitable for all surface coal mining operations BLM's October 6, 1981, pronghorn no surface occupancy area) was evaluated as a viable alternative in the draft PED/EIS, because, of the two pronghorn no surface occupancy areas, the October 6, 1981, area seemed to be the more likely to be finally adopted by BLM and so to be actually excluded from mining and surface disturbance. Recently, at OSM's request, BLM redefined the pronghorn no surface occupancy area. As a result, OSM deleted alternative C1a from the PED/EIS. (Note, however, that under any alternative the redefined pronghorn no surface occupancy area could not be mined or otherwise disturbed.) Accordingly, the "Summary" and sections ID, IIIA, IVA, and VC have been revised.

A As stated in section IVA, BLM's golden eagle nest buffer zones and Separation Creek riparian zones would also be excluded from mining and surface disturbance.

For a discussion of OSM's consideration of BLM's proposed habitat recovery and replacement plan stipulation, see response to comment No. 1B.

We disagree with your statement that the PED/EIS puts too much emphasis on the site-specific impacts of mining Red Rim and not enough emphasis on the regional impacts of mining. The PED/EIS analyzes the impacts to the Baggs Herd, a pronghorn population ranging over a large region in south-central Wyoming, that would result from mining Red Rim. The Baggs Herd is the focus of the analysis because Red Rim is within the herd-unit area for that herd and because there is little interchange between the Baggs Herd and other Wyoming and Colorado pronghorn herds. (See section IIA and response to comment No. 6V.) The PED/EIS shows the herd-unit areas of surrounding pronghorn herds (fig. II-3) and lists the most recently available population estimates for those herds (table II-2); it is correct, however, in not basing its impact analysis on information regarding the entire pronghorn population of south-central and southwest Wyoming and northwest Colorado.

B The most important BLM mitigation requirement regarding pronghorn for the proposed Red Rim coal lease tract is the habitat recovery and replacement plan that would be developed by the successful lessee. The BLM requirements for that plan are clearly identified in section IVA. As stated in that section, "At this preleasing stage, the details of the lessee's habitat recovery and replacement plan are, of course, unknown. Although OSM assumes a habitat recovery and replacement plan will be developed by the lessee, without the details of that plan, the impacts of implementing such a plan on the pronghorn using Red Rim cannot be predicted."

Section IIA has been revised because (1) Wyoming GFD's 1981 statement related to only the Muddy Creek critical winter range, not to both the Muddy Creek and Red Rim critical winter ranges; (2) at that time, browse on the Muddy Creek critical winter range was being consumed at a high rate not only by pronghorn, but also by livestock and other wildlife species; and (3) Wyoming GFD's statement was that the Muddy Creek critical winter range would further deteriorate in quality should additional pronghorn be displaced onto it by mining within the Red Rim critical winter range.

C From the time Wyoming GFD made its statement up to the time the draft PED/EIS was written, the population of the Baggs Herd was about 12,000, well above Wyoming GFD's population-management objective for it (7,200 pronghorn). Owing to the mortality suffered by pronghorn during the winter of 1983-84, the current population of the Baggs Herd is about 4,900, or approximately 40 percent of the 1981-83 population. Presumably, the carrying capacities of the two winter ranges have not significantly changed from 1981 to the present. Therefore, given the current population of the herd, and assuming both that the Red Rim and Muddy Creek critical winter ranges can support 2,400 and 4,800 pronghorn, respectively, and that livestock use of the range has remained constant since 1981, it appears that browse on the Muddy Creek critical winter range is no longer being consumed by wildlife and livestock at the high 1981 rate. The section IIA paragraph to which you refer has been revised. Also, section IIA has been revised throughout to indicate the reduction in the pronghorn population that has occurred.

D Livestock grazing has been heaviest in fans, terraces, and floodplain areas on Red Rim. Because the range condition of these areas is less than excellent, fewer grass species colonize them and the cover values and productivity of these grass species are lower than they would be were the range in a better condition. Also see response to comment No. 6AD.

E Section IVB has been revised.

F

TABLE G-1

It should be noted that textures are surface textures. Subsoil and sustratum textures may be different. Surface texture is usually only around 2 inches thick. Perhaps the texture of the control section should be used.

Scruggs soil in the table should be Screggs.

TABLE G-2

Wortman should be Worfman.

There is a soils interpretative table available for the following soils:

Monte - 1/74

Littsan - 3/77

Clowers - 4/77

Zeona is substituted for Cothran; Zeona has a soils interpretation table.

Cothran - There is no Cothran mapped in the area. Map Unit No. 228 should be Cothran/Spool/Rock outcrop complex, 10-30 percent slopes.

Spool - 7/77

Worfman - 3/78

CLASSIFICATION OF SERIES NOT YET PROPOSED

Dunkle: Coarse-loamy mixed Borollic Camborthid (deep)

Screggs: Coarse-loamy mixed Borollic Camborthid (moderately deep)

F

Table G-1 has been revised to indicate that the textures shown are surface textures. Detailed descriptions of the soil series and control sections may be obtained from SCS. Tables G-1 and G-2 have been revised to reflect the correct spelling of Cothran, Screggs, and Worfman soils and the classification of Dunkle and Screggs soils.

United States Department of the Interior
FISH AND WILDLIFE SERVICE

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Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION
134 Union Blvd.
Lakewood, Colorado 80228

IN REPLY REFER TO

HR

MEMORANDUM

To: Office of Surface Mining, Reclamation and Enforcement, Brooks Towers, 1020 15th Street, Denver, Colorado 80202

From: Assistant Regional Director, Habitat Resources, FWS, Region 6

Subject: Review of Red Rim, Wyoming, Draft Petition Evaluation Document/ Environmental Impact Statement (PED/EIS)

The U.S. Fish and Wildlife Service (FWS) has reviewed the subject document and offers the following comments. These comments have been prepared under the authority of and in accordance with the provisions of the National Environmental Policy Act (NEPA), the Fish and Wildlife Coordination Act, and other authorities mandating Department of the Interior concern for environmental values.

In our view, the draft PED/EIS contains serious deficiencies and does not adequately assess the environmental impacts of the different alternatives.

A The main issue discussed in the draft PED/EIS is whether the Red Rim area is suitable for surface coal mining under the Surface Mining Control and Reclamation Act (SMCRA) and if the area can be reclaimed for critical antelope winter range. Since a large portion of the area has been determined by the Wyoming Game and Fish Department as critical antelope winter range, it should be considered unsuitable for mining under Unsuitability Criterion Number 15, unless the surface management agency determines that mining will not have a significant long term impact on antelope.

Of all the alternatives proposed, only alternatives A (designating the area as unsuitable for surface coal mining), B1 (reclaiming the entire area to critical winter range for antelope), and D (unsuitable for surface mining, but allow underground mining) have the capacity to avoid significant long term impact on antelope. All of the other alternatives would result in the long term loss of critical antelope winter range and should not be implemented even though considered in the document.

A In accordance with the Federal Land Policy and Management Act (FLPMA), BLM evaluated the Red Rim proposed coal lease tract, in terms of its unsuitability criterion number 15, during its land-use planning process for that tract. Based on this evaluation, BLM determined the tract to be acceptable for coal development so long as certain stipulated methods of mining and mitigation requirements were used and met in the course of such development. For further clarification, please see section IE.

You have confused BLM's unsuitability criterion number 15 with the unsuitability criteria applied by OSM under SMCRA. See section 522 of SMCRA for clarification of these unsuitability criteria.

Of these alternatives, alternative D is dismissed in the document because of the expense of subsurface mining and possible human health and safety problems. Alternative B1 would require reclamation of the entire area to critical winter range for antelope. However, we find no assurance in the document that such reclamation is possible. References, such as the following, point out that successful reclamation of critical winter range on Red Rim is unlikely.

B

Page xi states, "The technology for long term reestablishment of certain shrubs, such as Wyoming big sagebrush, and other species necessary to the pronghorn during critical winters, is not, at present, entirely defined . . . ." Since this technology does not exist, there is no assurance that reclamation of critical antelope winter range is even possible, much less technologically and economically feasible as required by law.

C

Page IV-16 states ". . . revegetation to meet critical pronghorn habitat requirements (Reclamation Scenario 1) may be possible, utilizing new and untested planning/revegetation techniques." Reclamation Scenario 1 is thus based on unknown techniques. Stipulating unknown and untested techniques would only assure unknown results. In our opinion, proven techniques for restoration of critical antelope winter range must be known before this Reclamation Scenario can realistically be considered as an alternative.

D

Page IV-22 states, "There are no known data to quantify the exact number and types of topographic features that would be necessary to restore reclaimed lands to a condition equal or superior to the premine condition for wintering antelope." Without those data, we must assume that the reclaimed lands will not be restored to a condition equal or superior to the premine condition. In our opinion, this would constitute a violation of SMCRA.

E

Page F-4 states, "Seeding and plant establishment is inherently uncertain with the low levels of precipitation on this petition area." This statement acknowledges that the potential for restoring the premine environment for critical antelope winter range is at best "uncertain."

Page F-8 states, "Transplanting big sagebrush plants into minesoils suited to their development could have real benefits and would be essential to accomplishment of Reclamation Scenario 1." However, the previous sentence points out that "The extensive use of this method to establish premining big sagebrush densities is not feasible economically or environmentally." Since this is the only technique that has been proven to have any success for establishing big sagebrush, and this technique is not feasible, we must conclude that Reclamation Scenario 1 is technologically infeasible.

We feel that the reclamation costs estimated for Red Rim in Table IV-5 and Table IV-6 represent only a minimum estimate for revegetation and grossly underestimate the cost of reclamation to critical antelope winter range as proposed under Reclamation Scenario 1. Using reclamation costs incurred by

10

B

Please see the description of reclamation scenario 1 (appendix F) for a revised discussion of the probability of successful revegetation. Section E of the "Summary" has been revised.

C

Please see the description of reclamation scenario 1 (appendix F) for a revised discussion of the probability of successful revegetation. Section IVB has been revised.

D

The statement points out that it is conceivable Red Rim could be reclaimed to a topographic configuration different from the existing one but still able to approximate, or even possibly to enhance, all the features of Red Rim that are important to pronghorn. OSM was unable to identify a specific alternate postmining topography that would satisfy pronghorn critical winter range needs, because the relative importance to pronghorn of various topogrpahic parameters (i.e., diversity, direction, slope gradient, etc.) is not fully understood. For this reason, under reclamation scenario 1, the PED/EIS analyzes the feasibility of very closely approximating the premining topography. Also see response to comment No. 111AM.

E

Appendix F has been revised to more comprehensively discuss the uncertainties attending successful revegetation of the petition area. For purposes of analysis, OSM rejected the possibility of reestablishing the entire big sagebrush population on Red Rim by transplanting, because (1) transplanting would be time-consuming and impractical on the large scale necessary to reestablish plants in the areas where density is currently high; (2) the equipment required for transplanting could not be used on steep slopes; (3) the cost of transplanting the entire area would be prohibitively high; and (4) transplanting could cause considerable environmental damage to soil resources and vegetation outside the area to be mined should plants in that unmined area be needed for reclamation. Transplanting some mature big sagebrush plants into the reclaimed landscape where extensive stands of big sagebrush were being reestablished would foster some natural regeneration within the reclaimed community. Reclamation scenario 1 does not assume that this method alone would be used to reestablish big sagebrush populations; OSM believes that several strategies, including revegetation by tubelings and seedings, would be necessary to reestablish big sagebrush populations sufficient to serve as critical winter range forage.

11

F

Seminoe No. 1 and No. 2 mines for comparison purposes is not realistic since these mines are not reclaiming critical winter range nor creating the shrub densities or topographic diversity that would be required under Scenario 1. To determine if Reclamation Scenario 1 is economically feasible, the costs of the following activities noted on pages F-3 to F-9 would have to be added to the costs in Tables IV-5 and IV-6.

"Cover, frequency, and production data would have to be acquired by species for each of the existing plant communities established."

" . . . production data by community type would have to be developed for a minimum of 2 years prior to disturbance of the site."

"Very detailed soil resource inventory, analysis, and evaluation are critical."

Quantitative evaluation of the statistical reliability of the inventory map should be made by an independent organization or agency."

"Overburden sampling should be sufficiently intense that mapping of the strata having a relatively narrow range of physical or chemical properties can be accomplished . . . ."

"Selective handling of overburden materials is necessary . . . ."

"Analyze the soil and vegetation inventory information to determine the range of soil characteristics associated with each of the plant community types . . . ."

"A detailed literature search to develop amplitudes of soil adaptability . . . would be required and would have to be integrated with a thorough evaluation of the soil and vegetation data collected . . . ."

"At a minimum, the following reclaimed communities should be developed . . . ."

"Topsoil and subsoil materials . . . would have to be selectively removed . . . and stored separately."

"A detailed study and evaluation of the premine topography . . . ."

"Construction of snow accumulative pockets in the topography would be expensive . . . ."

"Detailed geomorphic studies would have to be conducted . . . ."

We believe the PED/EIS should include a detailed analysis of all reclamation costs in order to determine if it is economically feasible to mine Red Rim under Scenario 1.

F

The draft PED/EIS estimate of the total cost of reclamation did not include costs for the baseline inventory, research studies, and planning to develop appropriate reclamation goals. Section IVC has been revised to include additional costs relating to these items.

G Until it can be shown that Reclamation Scenario 1 is feasible, alternative B1 cannot be realistically considered as a viable alternative. This leaves alternative A as the only alternative that would avoid significant long term impacts on antelope. Therefore, until it can be shown that reclamation of critical antelope winter range is technologically and economically feasible, we recommend that this range be designated as unsuitable for mining.

H Several other issues also are of concern to the U.S. Fish and Wildlife Service (FWS). Page xi states, "Reclaimed lands would support some level of pronghorn use 10 to 12 years after planting." This statement should be clarified. What is some level? Would it include winter use during critical weather conditions? Considering the statements on page F-8 that "The pronghorn, rabbit, and deer populations would pose an immediate threat to the survival of the shrub species established . . ." and that " . . . feral stock would have to be excluded from the revegetating areas until the shrub species have become fully established, roughly estimated at approximately 10 years, but perhaps as long as 12 to 25 years, to avoid damage to the developing plant communities" it seems likely that reclaimed lands would be of little use to antelope for at least 10 years and possibly as long as 25 years. We know of no reclamation that has established a mature shrub community (that would be required during a critical winter) in the 10 to 12 year period hypothesized on page F-8.

I Page I-6 states that impacts "during the life of mining and reclamation (assumed to be about 40 to 45 years)" are considered "short term." We suggest that 10 to 15 years would be more appropriately called "short term," and we recommend the final PED/EIS utilize this time frame for analysis purposes.

J Page II-1 states that raptors are species of particular concern in the Red Rim area and that 11 golden eagle, 23 ferruginous hawk, and 8 prairie falcon nests occur on or adjacent to the proposed lease. All three species are Migratory Birds of High Federal Interest (MBHFI) and warrant consideration under Unsuitability Criteria Numbers 11, 13, and 14. Yet there is no discussion of the potential impacts to these species in the draft PED/EIS. Page II-3 states, "Therefore, the remainder of this wildlife discussion will address pronghorn and their critical winter range in the Red Rim petition area." Since the document is an EIS, as well as a PED, we believe that the impacts on all wildlife should be addressed.

Page IV-55 states that BLM developed buffer zones to protect prairie falcon and ferruginous hawk nests, but the only buffer zones indicated in the draft PED/EIS are for a golden eagle nest located in T.19 N., R. 70 W., sec. 8 and for a golden eagle nest in T. 20 W., R. 89 W., sec. 9. The buffer zone indicated on Plate 1 for the eagle nest in section 8 does not reflect the buffer zone that was agreed upon between BLM and FWS (refer to enclosed Map No. 1) and should corrected. These nests were only provided partial protection under unsuitability criteria procedures since most of the buffer zones lie on private lands. The rest of the golden eagle nests and prairie falcon eyries (refer to enclosed Map No. 2) were not declared unsuitable for mining because their designated buffer zones, within the petition area, also lie on private

12

G Thank you for your comment.

We project that The Red Rim site would recover significantly, perhaps to within half its premining carrying capacity, within 10 to 12 years after it is initially planted. The degree of maturity and physiological condition that the shrub stands attain during this 10- to 12-year period would depend in large part upon the quality of the reconstructed soils, the stability of slopes, and the distribution and amount of precipitation (wet or dry cycle) during the period. Certainly, as you indicate, shrub stands would not be fully mature after 10 to 12 years. No studies of Red Rim or other areas suggest that only mature shrub communities are of value to pronghorn. Therefore, pronghorn could be allowed to browse reclaimed stands, to a limited extent, before they are fully mature. In fact, some browsing of the stands might be advisable in the management of big sagebrush and related plant communities. For example, under carefully controlled conditions, stock might be allowed to browse the stands for grass and forb species, to eliminate some of the competition with big sagebrush. Moreover, pronghorn browsing the stands would likely not make maximum use of them every year but only during the most severe winters. Assuming that some of the shrub species used in the revegetation effort would be palatable to livestock, feral livestock should be excluded from stands, or allowed only very limited access to them, to allow maximum development of the shrub communities critical to pronghorn.

H

I OSM's policy in environmental assessments and EIS's is to define the duration of impacts as "short term" when they would extend for the project life, including mining and reclamation. All impacts that would continue beyond the project life are defined as "long term." In accordance with this policy, these definitions apply in this PED/EIS.

J See section IVD for a discussion of impacts to raptors.

K

lands. Concerning the 31 known ferruginous hawk nests located within the petition area, BLM applied the exception provision under Criterion 14 and declared that the nest areas and defined buffer zones were suitable for coal mining if lease stipulations were developed to afford protection to ferruginous hawks. It is our understanding from BLM that the mitigation requirements included in the Rawlins BLM District Manager's letter dated May 5, 1983, (Appendix J of the draft PED/EIS for the protection of ferruginous hawks, mitigation requirements 10 and 11) will be stipulated as part of any lease issued for the tract. FWS has not officially reviewed these mitigation requirements, and we are not in complete agreement with them. We will be initiating discussions with BLM to refine these requirements in the near future. Results of these discussions should be incorporated as part of any lease issued for the subject area. The final PED/EIS should clarify these points and provide a map showing locations of all raptor nests and the designated buffer zones that have been declared unsuitable for mining. Reference maps are enclosed.

K

Thank you for this updated information. As BLM mitigation requirements 10 and 11 for the proposed Red Rim coal lease tract (appendix J) state, the legal description generally delineates buffer-zone areas for golden eagles. Because the locations and activity statuses of raptor nests change with time, it would not be useful to delineate all of the potential nest sites or buffer zones at this time, prior to leasing the tract. OSM's understanding is that, prior to leasing the Red Rim tract, BLM would meet with USFWS to establish mitigation requirements for ferruginous hawks; we further understand that such a meeting has not yet taken place (Art Anderson, U.S. Fish and Wildlife Service, oral communication, 1985). As section IVD points out, should mining and reclamation occur on Red Rim, the Red Rim lessee, in consultation USFWS, must develop appropriate mitigation for any impacts to raptors.

13

L

In addition, in our review of the draft PED/EIS, we found no mention of endangered species or compliance with Section 7 of the Endangered Species Act of 1973, as amended (ESA). By memorandum of November 28, 1979, the Bureau of Land Management (BLM) requested formal consultation on the black-footed ferret (Mustela nigripes) for the Red Rim coal lease area. In a memorandum of February 22, 1980, the FWS issued a non-jeopardy opinion on the black-footed ferret, with the following recommendations.

1. Prior to the approval of a plan for mining and reclamation, the applicant should identify prairie dog towns that will be impacted and conduct black-footed ferret searches on those towns that the Federal land management agency and FWS mutually agree should be surveyed. Surveys should take place during the period of May 1 to October 15, preferably July through September.

2. The appropriate Federal agency (BLM or OSM) should reinitiate formal consultation if these surveys locate black-footed ferrets or their sign. The consultation should determine whether or not certain areas are unsuitable for mining or recommend that the appropriate stipulations be placed on the mining activity.

3. If black-footed ferret sightings or observations of their sign are made prior to leasing, BLM should reinitiate formal consultation.

The final PED/EIS should include a discussion of this consultation, and OSM's commitment pursuant to Section 7 (a)(2) of the ESA to ensure that mining in the Red Rim lease area will not jeopardize that continued existence of the black-footed ferret. New FWS black-footed ferret survey guidelines are being finalized and should be available in early 1984. These new guidelines should be followed when conducting future black-footed ferret surveys.

L

At a meeting held in early 1984, OSM and USFWS, Region 6, personnel agreed that, pursuant to Section 7 of the Endangered Species Act, they would consult to verify potential threatened and endangered species in the Red Rim area. OSM's biological assessment, which resulted from this agreement, includes appropriate precautionary measures to protect the black-footed ferret and other potential threatened or endangered species. The USFWS concurrence letter for OSM's assessment is included in this PED/EIS as comment No. 4. Sections IIA and IVD have been revised to include the results of the Section 7 consultation.

M Page III-13 states, "Should the production of coal from Red Rim be denied, the total National coal expenditures would increase by $5 to $11 million," yet page V-4 states that "the loss of coal from Red Rim (2 million tons per year, 69.3 million tons over the life of the mine) caused by an unsuitability designation could be compensated for from other mines in the State, and at costs that would probably be comparable." This last sentence seems to state that there would be no increase in National coal expenditures. This discrepancy should be explained or corrected.

N We also note inconsistencies concerning the assumed annual production for the Red Rim tract. Table III-6 on page III-12 assumes 4.99 million tons annually. Page III-13 assumes 2.5 million tons annually and page V-4 assumes 2 million tons annually. These conflicting figures make it difficult to evaluate the supply and demand for this coal. These sections need clarification. The following statements on page V-4 also raise the question as to the need for coal from Red Rim:

> ". . . most active coal-producing mines and areas in the State have a greater capacity to produce coal than is currently being utilized."
>
> "There are no Federal coal leases in the immediate area that would be affected if the petition is granted."
>
> "The impact [denial of coal extraction] would not be irretrievable or irreversible . . . ."
>
> "Loss of production from Red Rim . . . owing to an unsuitability designation would not cause a significant impact on Regional coal supplies."
>
> "National coal consumption should not (within the foreseeable future) be limited by supply constraints caused by designating the petition area as unsuitable for mining."

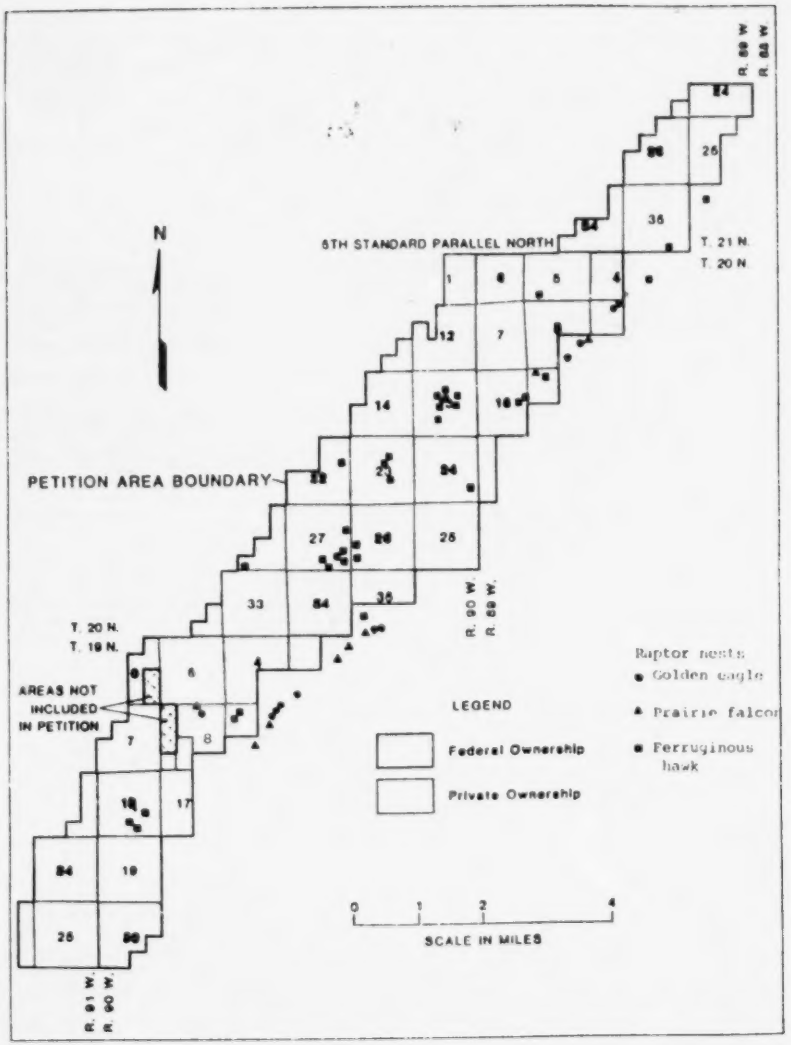
This concludes our comments on the subject draft PED/EIS.

Enclosures

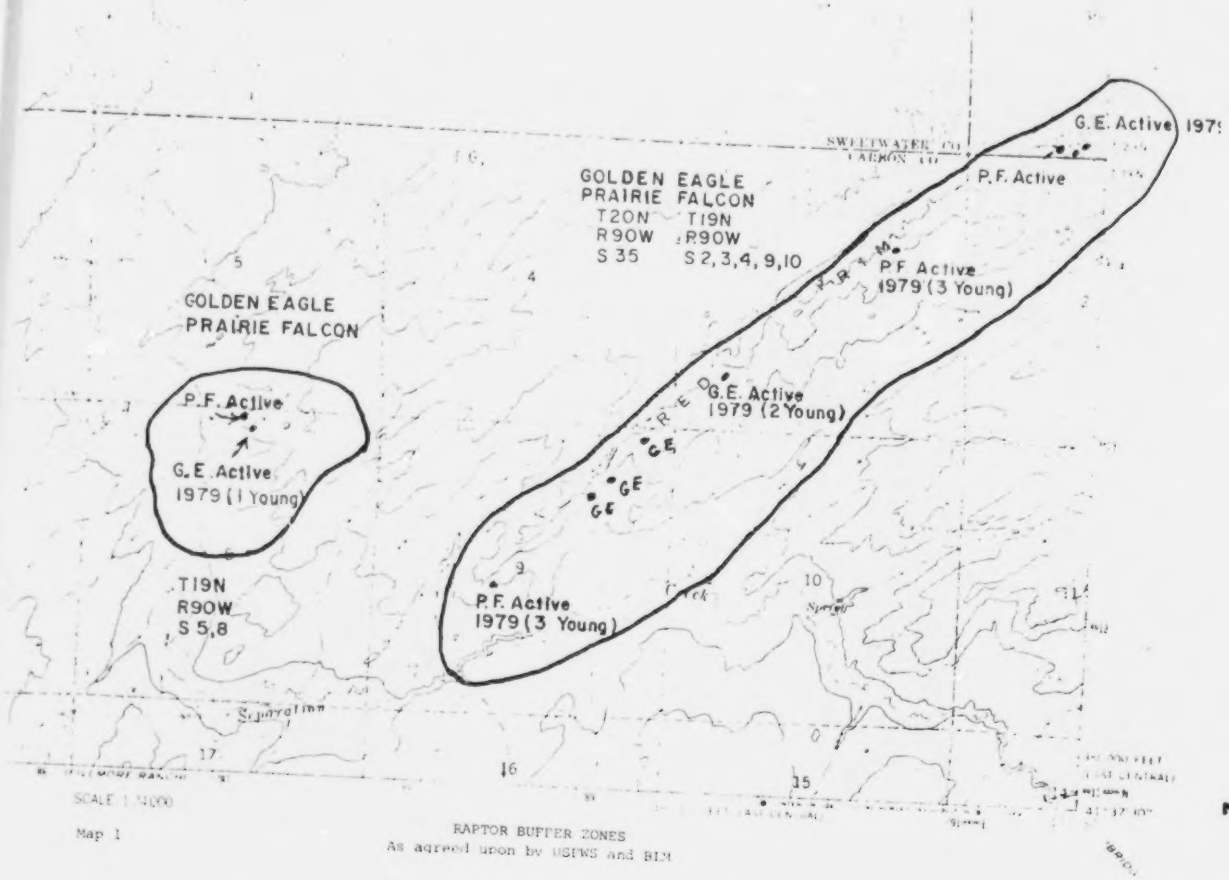
cc: ES Project Leader, Cheyenne, Wyoming
ES Field Supervisor, Billings, Montana
Chief, Division of Endangered Species, Region 6
Wyoming Game and Fish Department,
Cheyenne, Wyoming
BLM State Office, Cheyenne, Wyoming
BLM District Office, Rawlins, Wyoming

M Section IVB has been revised to indicate that the loss of coal from Red Rim could be compensated for by coal from nearby mines and that such a compensation should have no discernible effect on coal prices.

N Table III-6 has been revised to indicate that coal shipments from the petition area were constrained at approximately 2.5 million tons for both run one (unrestricted shipping) and run two (restricted shipping) of the coal-transportation model. Section VA has been revised to indicate that Red Rim would produce 2.5 million tons of coal per year.


N
6TH STANDARD PARALLEL NORTH
T. 21 N.
T. 20 N.
PETITION AREA BOUNDARY
T. 20 N.
T. 19 N.
AREAS NOT INCLUDED IN PETITION
LEGEND
Federal Ownership
Private Ownership
Raptor nests:
Golden eagle
Prairie falcon
Ferruginous hawk
0 1 2 4
SCALE IN MILES

Map 2




Map 1

RAPTOR BUFFER ZONES
As agreed upon by USFWS and BLM

2

United States Department of the Interior
FISH AND WILDLIFE SERVICE

IN REPLY REFER TO:
HR

MAILING ADDRESS
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION
134 Union Blvd.
Lakewood, Colorado 80228

Mr. John Crowe
Environmental Quality Council
Emerson Building, Room 304
2001 Capitol Avenue
Cheyenne, Wyoming 82002

AUG 21 1985

Dear Mr. Crowe:

At the recent Public Hearing on the "National Wildlife Federation Petition to Designate The Red Rim Area, Near Rawlins, Wyoming, Unsuitable For Surface Coal Mining Operations", held January 23 and 24, 1985, at Rawlins, you requested comments on the petition.

Previously the U.S. Fish and Wildlife Service sent comments to the Office of Surface Mining on the Red Rim, Wyoming, Draft Petition Evaluation Document/ Environmental Impact Statement. I am transmitting a copy of those comments to you for inclusion in the hearing record as they will provide information useful to the Hearings findings. If you need further information contact Mr. Arthur Anderson, Project Leader, Wyoming Suboffice, Ecological Services, U.S. Fish and Wildlife Service, 2120 Capitol Avenue, Cheyenne, Wyoming, 82001, phone (307)772-2372.

Sincerely,

Assistant Regional Director
Habitat Resources

Enclosure

cc: ES Field Supervisor, FWS,
Billings, MT w/enclosure
ES Project Leader, FWS,
Cheyenne, WY w/enclosure
Director, Wyoming Department of
Environmental Quality,
Cheyenne, WY w/enclosure

17

The attachment referred to in your letter is comment letter No. 1.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Helena Office
Federal Bldg. U.S. Courthouse
301 South Park
P.O. Box 10023
Helena, Montana 59626

IN REPLY REFER TO:

March 29, 1984

MEMORANDUM

TO: Robert Schueneman, Chief
Technical Support Branch, Office of Surface Mining,
Denver, Colorado

FROM: Wayne Brewster, Field Supervisor
Endangered Species, FWS
Helena, Montana

SUBJECT: Red Rim Unsuitability Petition - Biological Assessment

Based upon the information and project stipulations provided in the subject assessment, we concur with your conclusion that the unsuitability petition for Red Rim will not affect the bald eagle (Haliaeetus leucocephalus), peregrine falcon (Falco peregrinus), or black-footed ferret (Mustela nigripes). This concurrence is based upon the understanding that if Red Rim is declared suitable, the Bureau of Land Management would reinitiate Section 7 consultation prior to leasing, and the Office of Surface Mining would reinitiate Section 7 consultation when and if a mine permit application is processed.

See response to comment No. 2L.

We appreciate your efforts to consider and conserve endangered species and their habitats.

/Wayne L Brewster

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295-0699

FEB 7- 85

Ref: 8PM-EA

Allen D. Klein, Administrator
Western Technical Center
Office of Surface Mining
Brooks Towers
1020-15th Street
Denver, Colorado 80202

Dear Mr. Klein:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the Region VIII Office of the Environmental Protection Agency (EPA) has completed its review of the Red Rim, Wyoming, Draft Petition Evaluation Document/Environmental Impact Statement (PED/EIS). Our comments are offered for your consideration in preparation of a Final PED/EIS.

The Red Rim area is extremely valuable habitat for pronghorn antelope because it is both critical and traditional winter range. It has unique topographic conditions with its rim running from southwest to northeast where southwesterly winds leave the big sagebrush exposed and available to foraging antelope. Additionally, the proposed lease area is cut by numerous draws which provide the antelope protection from wind during resting and high wind periods.

Permitting surface coal mining operations would predictably reduce the Red Rim areas capacity to support antelope during a severe winter. As the Red Rim area is mined and the winter range decreases in size, some of the wintering antelope would move south along Muddy Creek and compete for forage there. Some would remain in the Red Rim area and would suffer the consequences of increased population densities and habitat loss: range deterioration, overcrowding, and depletion of critical winter forage. Losses due to starvation and predation, increased susceptibility to disease, and reduced fertility rate would increase.

A Surface mining operations would require construction of support facilities, cause habitat disturbance and an influx of human activity such as poaching, harassment by man and dogs, vehicle collisions, etc. This increased human activity upon the habitat and the antelope should be addressed in more detail in the FEIS.

Current mitigation requirements for the proposed coal lease tract call for mitigation of antelope habitat loss through the lessee's habitat recovery and replacement plan. The plan is to include a habitat analysis of the lease area which will cover identification of important topographic features, documentation of antelope populations and a vegetation analysis. This habitat analysis will provide a base for a habitat mitigation plan. This information is not now readily avalilable.

A The discussion of secondary impacts affecting pronghorn, presented in chapter IV, reinforces the conclusion that mine development and operation would adversely affect pronghorn habitat. Because OSM has no specific mine plans to analyze, it is not able to accurately identify losses and stresses due to these secondary impacts.

B Our primary concern is with adequate environmental protection of a valuable resource, the antelope critical winter habitat. The DEIS does not provide a sufficient discussion of mitigation measures to address this protection. We suggest that the FEIS provide a detailed discussion of reclamation and revegetation activities under similar geographic conditions. Additionally, we recommend consultation on this matter with the Soil Conservation Services' Upper Colorado Environmental Plant Center at Meeker, Colorado. Should inadequate environmental protection through mitigation or lease modification still exist, and there remain a potential for significant environmental degradation of the habitat, EPA recommends the petition be granted. It is our understanding that if the petition is granted, the intervenors could, with cause, request a rehearing at some time in the future. Cause could be defined as enhanced mining methods, improved reclamation techniques or other significant impact mitigation measures.

Based on the lack of current information and in light of the possibility for a rehearing, we are recommending a rating of EO-2 to this PED/DEIS. This means significant environmental impacts have been identified that must be avoided to provide adequate protection for the affected resource, the critical winter habitat of the pronghorn antelope. Additional information as noted could help to alleviate these impacts. If you have any questions please contact Mike Hammer of my staff at (303) 293-1495.

Sincerely,

Dale Vodehnal

Dale Vodehnal, Chief
Environmental Assessment Branch

cc: William Dickerson, A-104

20

The Department of the Interior's proposed mitigation requirements for the proposed Red Rim coal lease tract are included in appendix J. Some of these requirements would be appended to the lease as stipulations; others would be imposed through State and Federal mine permitting programs. Mitigation requirement 11 (appendix J), which would be appended to the lease, would require the successful lessee to develop a habitat recovery and replacement plan for Red Rim. This plan would have to be approved by BLM and the State of Wyoming.

Because Red Rim has not yet been leased, no detailed environmental baseline studies, which the successful lessee would be required to develop, yet exist. Because these studies, upon which OSM would in part base their review of the successful lessee's mine permit application (which is also nonexistent), are not available, it is difficult for OSM to develop specific mine-permitting mitigation requirements. In the absence of detailed environmental baseline studies, appendix F suggests specific studies that should be performed by the lessee.

B Although the PED/EIS develops no mine-permitting requirements as such, it does propose decision alternatives, available to the Secretary of the Interior, that constitute mitigation requirements in and of themselves. The implementation of any of these partial-designation alternatives (C1a, C1b, or C1c) would protect certain important portions of the pronghorn critical winter range.

Where possible, the PED/EIS evaluates potential reclamation and revegetation activities at Red Rim in terms of actual activities at active mine areas comparable to it. However, in some cases, the relevance of such a comparison is questionable, because no other active mine areas in the State of Wyoming disturb pronghorn critical winter range or affect the relationship among topography, vegetation, and snow patterns essential to maintaining it.

OSM actively furnishes technical assistance and funding to SCS's environmental plant centers, including the Upper Colorado Environmental Plant Center in Meeker, Colorado. The principal focus of study at these centers is plant species that can be used for livestock forage or to stabilize erosion in reclaimed areas. Given this focus, the centers' work is germain to standard reclamation practices but, for the most part, not specifically to the complex shrub and revegetation problems that would be encountered on Red Rim. See response to comment No. 6BJ.

## B. STATE OF WYOMING

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

*Game and Fish Department*

CHEYENNE, WYOMING 82002

W DONALD DEXTER
DIRECTOR

January 6, 1984

EIS 237/L5
USDI/OSM/BLM
Rawlins District
Overland Resource Area
Red Rim Draft PED/EIS
Carbon County
A-30, 38, E-25, MD-27

Mr. Allen D. Klein, Administrator
Western Technical Center
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 Fifteenth Street
Denver, Colorado 80202

23

Dear Mr. Klein:

In response to your notification of December 7, 1983, we have reviewed this revised document and offer the following comments.

**A** P. viii - Winter population estimates of pronghorn do not range from 700 to 2,400. The current estimate of pronghorn wintering on Red Rim is 2,800. The low number was based on 1978 Baggs DAU population estimates. Numbers have increased dramatically since 1978.

**A** Section E of the "Summary" has been revised.

**B** P. ix - The data on numbers of deer hunters in the Baggs herd unit are incorrect. The data presented are for only Hunt Area 85.

**B** Section E of the "Summary" has been revised.

**C** "The problem of having an existing pronghorn herd population which exceeds the carrying capacity of the land will continue until the total numbers of pronghorn in the Baggs Herd are reduced." We know of no documentation that this herd is over carrying capacity. We've said we are over our population objective. That is not carrying capacity. That objective is based on other concerns as much as biology.

**C** Section E of the "Summary" has been revised.

**D** "...extraction of the coal...could result in a long-term loss of wildlife habitat...." We contend it will result in a loss of wildlife habitat. The language in this document appears designed to hedge on this issue. Where impacts are discussed, the words "could", "might", and "may" are used to give the reader the idea there may not be any impacts. Where reclamation is discussed, the words "would", "will", and "can" are used to give the reader the idea there is no problem.

**D** Section E of the "Summary" has been revised.

E — P xi - "The technology for long-term establishment of certain shrubs...is not, at present, clearly defined...." We are unsure of this meaning, if it can be done, or has been done, clarification is in order.

F — - "Reclaimed lands would support some level of pronghorn use 10 to 12 years after planting." How much use and for how long should be defined, along with what this would do to the ability of these lands to support the Baggs Herd.

G — - We do not agree with the authors that a 40-45 year impact "short-term." We consider 10-15 years short-term.

H — - "Impacts to pronghorn and pronghorn habitat would be less under the partial-designation alternative than under the no-designation alternative." This statement should be supported with quantification.

I — - Designation as unsuitable for mining those areas on which reclamation is not technologically and economically feasible is required by law. This fact should be noted.

J — P. I-6 - Again, use of 40-45 years as "short-term impact" is unacceptable from the wildlife standpoint, to this Department. Ten to fifteen years is considered short-term in impact analysis. We consider impacts over 40-45 years to be long-term impacts.

K — P. I-13 - This is the first reference in this document to the fact that this antelope population is above objective. It is mentioned many more times in the text. We feel this is a moot point. All of our impact analyses assumed that this population would be at its objective before this mine was initiated. Whether or not a population is presently at objective makes no difference in this analysis.

L — BLM data do not support the contention that current numbers of antelope on the Red Rim or Muddy Creek winter ranges are causing over utilization of key shrub species.

M — P. I-13, Alternative A. The document notes that declaring the area unsuitable for mining would preclude extraction of 69.3 million short tons of coal. Data gathered by the Office of Technology Assessment (1981), indicates federal coal leases have already been issued for tonnages far in excess of projected coal demand, even without taking private coal production into consideration. Analysis of this Office of Technology Assessment further indicates to us that the percentage of coal contributed by this mine would not be a significant proportion of the overall coal production in this country. Conversely, this mine will impact a significant proportion of the world's pronghorn population, for which there is great hunter demand.



E — Section E of the "Summary" has been revised. To date, mined areas in Wyoming have routinely been revegetated with fourwing saltbush (Atriplex canescens) and, recently, winterfat (Ceratoides lanata) shrub species. Revegetation with other shrub species has not succeeded on a consistent basis. In certain cases (i.e., where seeding has been correctly carried out and where site and weather conditions have been optimal), areas have been revegetated using big sagebrush (Artemisia tridentata) with significant success. However, under conditions that are normal or otherwise not optimal, very little to no establishment of the species results from the use of current techniques. Also see responses to comment Nos. 2B and 6BJ.

F — Section E of the "Summary" has been revised. See response to comment No. 2H.

G — Section E of the "Summary" has been revised. See response to comment No. 2I.

H — Section E of the "Summary" has been revised. The sentence to which you refer was a general statement that compared the impacts of a partial designation with those of alternative B (no designation); it was made without reference to any specific partial designation alternative analyzed in the PED/EIS. Clearly, designating part of the petition area unsuitable for mining, whatever the grounds for the designation, would reduce the amount of disturbed acreage in the critical winter range area. Compared with implementing alternative B, such a designation would generally result in a lesser reduction of carrying capacity and in reduced adverse impacts on the Baggs Herd.

I — Section E of the "Summary" has been revised. The sentence to which you refer was a factual statement of the reduced adverse impacts, compared to those resulting from implementing alternative B (no designation), that would result from implementing this partial designation. It was not a statement of the legal mandate to designate any area unsuitable for mining if that area cannot be reclaimed. That legal mandate is discussed repeatedly throughout the PED/EIS in those sections relating to the petition decisionmaking process.

J — See response to comment No. 2I.

K — Section ID has been revised.

L — Sufficiently detailed, reliable, and site-specific vegetation data are not available to define the extent of use by pronghorn of various shrub types on Red Rim. BLM and RME data are sufficiently detailed to serve as the basis for making broad land-use decisions; they are not adequate to precisely identify the individual shrub species, subspecies, or genotypes pronghorn use. Because the available data are not sufficiently detailed to be used to evaluate the extent and patterns of use by pronghorn on Red Rim, section ID has been revised.

M — Section VA has been revised.

N

Pp. I-13, Alternative B. Not Designate Any of the Petition Area as Unsuitable for Surface Coal Mining Operations. - "Selection of this alternative would not imply approval of surface coal mining operations within the petition area." We believe that if none of the petition area is designated unsuitable for mining, the agencies have decided it can be mined, and thus a permit will be issued. It would be illogical to presume otherwise. It is our opinion that failure to designate the area as unsuitable will result in its being mined.

N

Not designating any of the petition area as unsuitable for surface coal mining operations would not mean that an application for a permit to mine the area would automatically be approved. A permit application for the area could be denied.

O

Pp. I-16,17 - Why, if there is essentially no problem for pronghorn from mining Red Rim, as the BLM planning documents stated, did BLM decide there should be no coal development on other critical winter ranges? We believe that this decision was made because the rest of the pronghorn in this herd need the remaining winter range. This is tacit recognition that there are going to be large impacts from mining critical winter range on Red Rim, yet the area was declared suitable for mining.

O

See response to comment No. 2A. The BLM unsuitability analysis is a separate and independent process from the SMCRA unsuitability process.

P

Page II-1 - Data on winter sage grouse distributions and numbers are incorrect. Data from the Rocky Mountain Energy Study indicate that all of the Rim was used during the winter of 1979-80, while major concentrations in the winter of 1980-81 were in the southern portions of the area. Up to 3,000 birds have been seen using the Red Rim.

P

Section IIA has been revised.

Q

P. II-3, Para. 2 - Aerial photographs of Red Rim, in Irwin's Red Rim Report document the effects of snow cover and the fact that Red Rim is surrounded by a belt of deep snow in severe winters.

Q

Section IIA has been revised.

R

P. II-3, Para. 3 - This section implies that pronghorn move widely in the winter. While it's true that pronghorn use of winter range varies with the severity of the winter, prevailing winds, snow depth, and availability of forage, this movement occurs within the bounds of the traditional winter range, except in mild winters.

We disagree with the idea that critical winter range delineation means there are no physical limitations on distribution during severe winters. Physical limitations do exist in the following forms. Highway 789 to the west is fenced with woven wire, as is Interstate 80 to the north. The Continental Divide is east of the rim and there is considerable limitations to the south around the state line. We agree that, given freedom of movement, antelope will use areas outside the critical winter range in mild winters, but we can demonstrate that these areas have physical boundaries around them during severe winters.

R

The discussion in the paragraph you cite is accurate; it explains why Wyoming GFD undertook to delineate a critical winter range area that contains the essential mixture of food and shelter for wintering pronghorn. The paragraph was written for the lay person who should understand that pronghorn are mobile and can be expected to cross Wyoming GFD's designated critical winter range boundary.

S

P. II-3, Para. 4 - Aerial counts are often modified by a correction factor, not a "population model" factor.

S

Section IIA has been revised.

P. II-3, Para. 5 - The population objective for this herd is only partially related to the ability of the area to support pronghorn. It's also related

25

T to socio-politics - the desires of the various publics. There is no population objective for Red Rim because antelope there do not constitute a separate and distinct population, but rather only a portion of one.

U P. II-6, Para. 1 - The Baggs Antelope Herd is being reduced to bring the herd to planned objectives, not because of range deterioration and over utilization. Reduction of antelope on Red Rim has been difficult because the private landowner involved will not allow hunter access. Most of the reduction will, therefore, occur in other portions of the Baggs Antelope Herd. This means that the number of antelope remaining on Red Rim in winter will represent an even greater proportion of the Baggs Herd - perhaps as much as 28% if there are 2,000 antelope wintering on Red Rim following herd reduction.

V P. II-6, Para. 2, Table II-2 - The number of antelope in nearby portions of Colorado and Wyoming has nothing to do with the Red Rim issue. This entire paragraph is immaterial, and should be deleted.

W P. II-6, Para. 3 - As was documented the last three years, pronghorn use of Red Rim is high even during mild winters. During severe winters, pronghorn move to Red Rim for food and shelter.

X P. II-6, Para. 4 - Winter population estimates are given here as a range. That is incorrect. Animals are not static. The real estimate is based on the maximum number seen on the site - the number of animals depending on the site in winter. Estimates of losses and impacts should also be based on those maximums.

Y P. II-6, Para. 5 - We would question why Yoakum's pronghorn management guidelines are used here. By nature, they have to be general, yet work done by this Department, BLM, and Irwin was site-specific. We feel those site-specific data more fully describe factors affecting antelope on Red Rim.

Z P. II-10, Para. 2 - This whole discussion of the nutritional value of sagebrush is unnecessary. Unless reclamation can be designed to change the nutritional value of sagebrush, this is filler which is restated in the next paragraph.

AA P. II-10, Para. 3 - Are pronghorn feeding on sagebrush in draws, where plants protrude above the snow, or on south-facing slopes and windswept ridges where there is little snow? It's not clear in this paragraph.

AB P. II-10, Para. 6 - We feel data concerning the importance of free running water during winter to be misrepresented. The winter of 1980-81 was one of the mildest ever recorded for this area. Antelope were not forced to use any traditional winter ranges. In 1980-81 water was important in winter because of the lack of snow, but that winter was quite rare for this area.



T Section IIA has been revised.

U Section IIA has been revised.

V OSM included this background information to show the readers the relationship between the population of the Baggs Herd unit and that of other pronghorn-management units in the region. Section IIA has been revised to discuss barriers to pronghorn and the minimal interchange of pronghorn populations among herd units.

W Section IIA has been revised.

X We agree that pronghorn populations are dynamic. Both the paragraph you cite and table II-3 detail their fluctuating populations. OSM's intent in pointing out the range in pronghorn populations was to clarify that pronghorn use of Red Rim varies throughout the winter, sometimes widely, depending for the most part on weather conditions.

Y Yoakum's pronghorn-management guidelines accurately describe pronghorn habits, preferred habitats, and management considerations in broad terms. As such, they furnish the lay reader a general understanding of the pronghorn using Red Rim. PED/EIS analyses, however, are demonstrably based on the site-specific data you cite.

Z This paragraph establishes the rationale for the restoration of sagebrush during reclamation. The discussion on the nutritional value and palatability big sagebrush accessions is pertinent to the issues of (1) whether existing sagebrush plants on Red Rim should be transplanted onto areas undergoing reclamation, (2) whether sagebrush seed and transplants from other areas would produce plants that would sufficiently meet pronghorn food requirements, and (3) assuming that these two questions are affirmed, which existing sagebrush should be transplanted. The petitioners (comment No. 100) and RME (comment No. 111) specifically addressed accessions of big sagebrush at the public hearing.

AA The importance of Red Rim's draws for providing food and shelter to wintering pronghorn has been established. During the winter of 1979-80, following heavy snowfall, pronghorn concentrated first along Separation Creek (in draws), where taller big sagebrush were available, and then, when the creek bottom became too crowded, on windswept benches supporting shorter sagebrush. Section IIA has been revised.

AB Section IIA has been revised.

AC P. II-11, Table II-4 - This table of nutritional values of winter forage adds little to the document. It should be deleted.

AD P. II-13, Para. 2 - "Owing to increased livestock use in the proximity of water, plant communities and associated species near Separation Creek have been influenced to a much greater extent than those in the breaks near the Red Rim escarpment." Does this mean that livestock have overgrazed areas near streams and altered the vegetative composition? Some clarification is in order.

AE P. II-13, Para. 5 - With all the rationalization removed, we interpret this paragraph to say RME's vegetation work was not done well enough to allow comparisons with other studies. If so, why mention the study? The same is true of the next paragraph. We would say that the limited data collected by OSM in a day or two on this site are of similar value.

P. II-19, Para. 2 - Data with inadequate samples from only a portion of the area are not suitable for comparison with any other studies. These should be omitted.

P. II-19, Para. 4 - Why include a discussion of SVIM if habitat data are not available? We recommend this be deleted also.

AF P. II-21, Land Use - For comparison with antelope numbers, we suggest it may be appropriate to show how many cattle use the 2,430 AUM's available on this allotment, over the past 5 years.

AG P. III-11-13 - We see here what the coal market model says about coal demand.

DOE estimates do not agree with more recent figures of the Office of Technology Assessment. The Office of Technology Assessment report indicates that much less of the nation's demand for coal will be met by this mine.

AH P. IV-1 - Wyoming law requires restoration of "highest previous use," and that is the use of highest economic value to citizens of the region. In our opinion, that use is wildlife habitat, not livestock grazing, on Red Rim. Wildlife habitat cannot be restored in sufficient quantity to support wintering antelope, therefore, the area is unreclaimable. We contend this allegation is hardly frivolous.

AI P. IV-2 - "During the life of the mine, a maximum of approximately 4,900 acres of mined land would be unreclaimed at one time." We do not agree with this statement. On this site, reclamation must restore shrubs. Such reclamation has been done with limited success in Wyoming, and we do not believe it can be done on Red Rim within any reasonable time frame. This

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AC See response to comment No. 6Z.

Human activities, many of them in response to the grazing needs of livestock, have dramatically altered the vegetative cover of the arid West during the last century. A basic premise of modern range management and rangeland land-use planning is that cattle, as an example, concentrate their grazing close to a water source; thus, distributing water throughout a given grazing unit can result in better cattle distribution throughout the unit. Given the choice, cattle also limit their use of forage to flatter slopes. EPA studies stongly suggest that

AD overgrazing near streams has not only altered the vegetative composition of many riparian habitats and associated plant communities but has also significantly reduced water quality in the streams. At Red Rim, with its dramatic range in hillslope gradients, grazing has resulted in greater changes to vegetation on the lower fans and floodplain/channel areas (with flatter gradients) than to vegetation in the steeper upland/breaks areas. The extent of overgrazing on Red Rim has not been established, because sufficiently accurate vegetation data to make this determination are not available.

The RME study was not designed to fully characterize the plant communities on the Red Rim site. Moreover, the methodology of the study was changed midway through it. Consequently, a given datum from the study cannot be compared, with assurance, with another datum from the study or with other data collected regarding Red Rim. The structure of a vegetation study (i.e., its objectives and design, the intensity of sampling it undertakes, the time of year it is conducted, historical and current precipitation in the area being studied) alter the use that can be made of it; and, clearly, study structure must be in accord with the objectives and use to be made of the study. However, the parameters of a study cannot assure

AE the accuracy of the study's results, which is, for the most part, determined by both the care used in identifying plant species and taking measurements and the extent to which study design is properly carried out under field conditions. In short, vegetative studies are conducted at different intensitites to meet different needs, but neither the intensity of nor the need for the study determine its quality.

OSM included vegetation data from many sources in the PED/EIS to provide the readers and the Secretary of the Interior with as much information about the Red Rim site as possible. OSM conducted no quantitative revegetation studies on the site nor did it indicate in the PED/EIS that it had done so.

AF Section IIE has been revised to present available information on livestock use of forage in the petition area.

AG Section IIIB has been revised.

AH See response to comment No. 100S for a discussion of the differences between Wyoming DEQ and OSM regulations regarding postmining land use on private and Federal lands. The Wyoming DEQ Administrator's legal arguments for rejecting allegation 2 as frivolous are given in appendix B and in section IB. At the January 23-24, 1985, hearing on the petition and the draft PED/EIS, Wyoming EQC rejected the petitioners' appeal of Wyoming DEQ's rejection of allegation 2 of the petition. Wyoming EQC's upholding of Wyoming DEQ's decision was not based on the substance of the appeal but, rather, on the fact that the petitioners did not file the appeal within the required 60-day time period after Wyoming DEQ's rejection decision. This decision by Wyoming EQC had no effect on OSM's processing of the petition. OSM had not previously rejected allegation 2; therefore, it continued to analyze that allegation.

AI See section IVA for the assumptions used in calculating the maximum amount of acreage that would not be reclaimed. See response to comment No. 2H regarding the amount of time it would take to reclaim the site for some pronghorn use. The uncertainties of and risks to the accomplishment of reclamation are described in response to comment No. 2B and in appendix F. See response to comment No. 2I for OSM's definition of short-term impacts.

AJ See response to comment No. 6AH. Whether reclamation is technologically and economically feasible is being analyzed by OSM now, as part of the unsuitability petition process. If Red Rim were not designated unsuitable for mining, prior to any mining occurring reclaimability would again have to be analyzed as part of the permitting process. A finding that an area proposed for mining is reclaimable is required prior to the issuance of a permit to mine that area. See comment No 1B, which states that the mitigation requirements identified for the proposed Red Rim coal lease tract (appendix J) would become stipulations appended to any lease issued by BLM for that tract or conditions imposed through the State and Federal mine permitting programs. These requirements are general enough that BLM could require contingency plans to be incorporated into the studies and plans to be developed by the successful lessee. For instance, BLM could require the lessee to develop a contingency plan as part of the habitat recovery and replacement plan.

AK OSM developed reclamation scenarios 1, 2, and 3 to encompass the range of possible approaches to reclamation of the Red Rim tract. Under these scenarios, the tract would be reclaimed as pronghorn winter habitat to varying degrees.

document considers 40-45 years short-term, which is an admission that there will be a lot more than 4,900 acres disturbed at one time. Additionally, we examined approximately a dozen comparable EIS, none of which considered 45 years a short-term impact.

AJ P. IV-2 - BLM's mitigation requirements for the Red Rim lease are a moot point, since the Wyoming DEQ has stated reclaimability is a "frivolous" issue (Page IV-1). Therefore, we have no assurance any of this will be considered in the mine plan. The habitat mitigation plan proposes things that may or may not mitigate losses. We have no assurance these will be part of the mine plan, or that there is a contingency in case BLM's mitigation requirements do not work.

AK We question the need for three reclamation scenarios, including non-restoration of winter range, when restoration of that range is the important issue in this petition.

AL P. IV-4 - "...Wyoming DEQ and OSM could require the reclamation stipulations outlined in this scenario...." They also might not, in which case the area will not be adequately reclaimed for wildlife and livestock.

AM "All mined lands would be reclaimed to multiple-use native grassland for livestock grazing and wildlife habitat." This Department has been working with both agencies for some time, and we have in the past accepted loss of shrubs on noncritical winter range. We have also agreed with trade-offs on private lands, where shrub-grass habitat has been converted to grassland. We do not want anyone to presume, though, that because grassland is habitat for some wildlife (much less wildlife than found in shrub-grass areas), it is valuable to wintering antelope, or that it is quality wildlife habitat. We have accepted conversion of mined areas to grasslands because it occurred in areas not critical to wildlife. Grassland is not antelope winter range, and it will provide no pronghorn critical winter range. We recommend that fact be made clear in the final EIS. Restoration to current DEQ standards would not meet antelope winter needs. The law requires restoration to premining shrub densities.

AN P. IV-4 - Reclamation Scenario 1 - "Special attention would be given to recreating those narrow draws (important as shelter for pronghorn and for collection of moisture for shrubs)." We feel the author has failed to understand the nature of this winter range. Shrubs in the draws are unavailable to antelope in severe winters because they are buried under snow. Those on the windswept slopes and ridgetops are used as forage. How is moisture to be provided for them? We know that shrubs in draws are more likely to grow, but we also know that those are largely useless to antelope during winter when they are unavailable due to heavy snow cover.

AO "The best current available technology to enhance shrub community development would be utilized...." Exactly what is that? Previously in this

AL The three reclamation scenarios developed for and analyzed in the PED/EIS address the range of possible reclamation plans that could eventually be approved by OSM and Wyoming DEQ. The PED/EIS analyzes the environmental impacts of reclamation under each of the scenarios.

See the descriptions of the extent to which Red Rim would be revegetated under reclamation scenarios 2 and 3. Revegetation with native shrubs, including sagebrush, would be required under both these scenarios, though shrubs would not be restored to premining densities under either.

Chapter IV, Section 2d(6)(a) of the current Wyoming DEQ rules and regulations, which were promulgated by Wyoming EQC to implement the law, states that "when wildlife is part of the postmining land use, shrubs and trees shall be returned to a density at least equal to that existing on the area before mining." At present, these rules and regulations are proposed to be changed. (Note that the rules and regulations, and indeed the laws themselves, may change again from those now existing or proposed at any time prior to the mining of Red Rim, should that occur.) Under the proposed regulations

AM (Chapter IV, Section 3(d)(vi)(A)), "when wildlife is a part of the postmining land use, the goal for shrub restoration shall be defined as a set percent of the surface restored to an average density of one shrub per square meter in a mosaic of shrub patches * * *. For areas containing designated critical or important habitat, the Wyoming Game and Fish Department shall be consulted for recommended reclamation standards for shrub density, cover, distribution and species compostion."

If Red Rim were designated not unsuitable for surface coal mining operations, several years could pass before a lease were let and a permit application were submitted for the tract. Because laws and regulations could change substantially during this time, OSM developed reclamation scenarios 1, 2, and 3 to encompass the range of possible approaches to reclamation of the tract, irrespective of the precise laws and regulations currently in effect or proposed for revision.

Sagebrush in the draws is not always inaccessible to pronghorn. When snow is not too deep, pronghorn browse the sagebrush there. See response to comment No. 6AA. We agree that windswept ridges are a crucial component of the pronghorn critical winter range on the Red Rim site, because they provide pronghorn access to forage during and following the periods of severe weather. The narrow draws adjacent to these ridges provide pronghorn shelter from severe wind during storms. They also

AN constitute a complex environment that is important not only to pronghorn but to other biological components of the Red Rim ecosystem.

The difficulty in reestablishing Wyoming big sagebrush (Artemesia tridentata ssp. wyomingensis) and other shrubs on windswept ridges is acknowledged throughout the PED/EIS. Note, however, that the current density of shrubs on these ridges is low; to reestablish them to their premining density, although difficult, would be less difficult than if their premining density had been high.

document, such technology was said to be "not clearly defined," which means nobody knows how. Are we to depend on something that has never been done?

AP "...mitigate potential loss of pronghorn critical winter range." The fact is that antelope will be lost. The word "potential" is misleading in this context.

AQ "...this effort would require extensive use of tubelings, transplants, and seedlings." Our information indicates that only 30% of tubelings survive if there is no drought. Transplants have had spotty success, and seedings of sagebrush are unsuccessful in most of Wyoming.

AR "...re-establishment of optimum vegetation patterns for pronghorn herd maintenance...." What exactly are those vegetation patterns?

AS "Not all of the habitat components are known...." How can you re-establish habitat components if they are not known?

AT Shrubs planted in "selected areas of greater effective moisture" would be in draws, under snow, and unavailable to antelope in winter.

AU Pp. IV-5 & 6 - We feel the use of any reclamation scenario except No. 1 to be unacceptable. Others will not restore the premining land use, nor restore densitites of shrubs sufficient for critical antelope winter range.

AV P. IV-6 - We reiterate our opposition to the term "short-term impacts." Ten to fifteen years is short-term, 40-45 years is not.

AW P. IV-7 - Use of a reference nearly 10 years old to prove that pronghorn are a valuable resource creates a serious understatement. It's now estimated that Wyoming contains 75% of the world's pronghorn. Given that, it seems obvious that they have at least "...some value as a natural and scientific resource."

AX "Critical winter range is valuable habitat for pronghorn." This is extremely understated. Critical winter range, by definition, is essential habitat for pronghorn.

AY P. IV-8 - Red Rim was cooperatively classified as critical winter range in March of 1979 by the BLM and the Department. The data presented here are incorrect.

AZ The comment here on winter population estimates ignores the concept of critical winter range. There is a great deal of averaging of high and low estimates. The important figure is the maximum count. That always occurs in late winter. Counts illustrate that Red Rim is important to a lot of pronghorn, even in mild winters. Considering that in the last severe

AO Section IVA has been revised. Please see appendix F for a description of currently available technology and future potential for development of methods for shrub reestablishment.

AP The PED/EIS acknowledges that pronghorn would be lost if surface coal mining is permitted. The problem of whether or not pronghorn habitat could be restored is different from the problem of whether or not pronghorn would be lost if coal mining is permitted.

AQ See responses to comment Nos. 2E, 6E, and 6AO. The survival and development of tubelings varies widely, depending on the quality of the tubelings, care taken in their transport, handling, and transplanting, the kinds of minesoils they are planted into, the amount and distribution of postplanting precipitation, and how the tubelings are managed once they are planted. The PED/EIS acknowledges the difficulty in reestablishing big-sagebrush-dominated communities throughout; it states that certain existing and developing planting techniques and strategies could be used to increase the survival rate of seeds and tubelings.

AR See responses to comment No. 6AE regarding the existing vegetation data for the Red Rim area. Only a very general understanding of vegetation patterns in the area can be derived from these data. Transplanted shrubs and tubelings would be planted in islands throughout the landscape. These islands would be optimally located for pronghorn use. To the extent possible, their location would follow premining vegetation patterns; however, the suitability of reconstructed minesoils on specific sites to support shrubs and tubelings may affect their placement. See the revegetation cost discussion in section IVC for further information regarding the planting of shrub islands.

AS See response to comment No. 6AR. Section IVA has been revised.

AT See responses to comment Nos. 6AA and 6AN.

AU See responses to comment Nos. 100S and 6AM.

AV See response to comment No. 2I.

AW Section IVB has been revised.

AX Section IVB has been revised.

Since pronghorn are managed by the State of Wyoming (not by the Federal government), Wyoming GFD, not BLM, is authorized to designate critical winter range for them. Wyoming GFD has not submitted written documentation to OSM to indicate that the critical winter range for Red Rim was designated as such in 1979. As the text states, OSM has found documentation indicating that Red Rim was classified as critical winter range at least as early as 1981. Therefore, section IVB has not been revised. It is our understanding that, as part of BLM's land-use planning process, Wyoming GFD and BLM biologists consulted in 1979 regarding important pronghorn winter habitat on Red Rim. Although, at that time, BLM delineated crucial winter range at Red Rim, in accordance with FLPMA and the Federal land-use planning process, we find no documentation to indicate that Wyoming GFD also designated pronghorn critical winter range for the area then. We acknowledge that BLM's crucial winter range delineation covers approximately the same area that Wyoming GFD's critical winter range designation covers.

AY

The maximum pronghorn population counts are stated in the paragraph. The paragraph was not written to explain the concept of critical winter range. That concept is discussed in section IIA.

AZ

winter (1978-79) the number of pronghorn increased from 689 to 1,408 from early January to late February, as winter severity increased, we wonder how many pronghorn might have been there in February, 1983, if the winter had been severe. After all, there were 2,073 there in early 1983 even though the weather was mild.

BA Data concerning the percentage of antelope from the Baggs Herd that used the Rim at any time are incorrect. Our analysis was based on this population being at objective, not at the current level.

BB P. IV-9 - It is stated that the Department will reduce this population below the objective of 7,200 animals should the mine be leased. This is correct but it does not mean that this is our preferred alternative. We will be forced to reduce this population commensurate with reductions in available critical winter habitat. This statement is referred to many times in the document, but not in context.

BC We feel the document should include an estimate of pronghorn that would be lost to causes other than winter range loss, such as fencing.

BD P. IV-11 - The 10 and 12 year lag "before restored lands could support the premining level of pronghorn use" is idealistic, at best, and totally unsubstantiated by any data of which we are aware.

"Given time, sagebrush would become re-established on reclaimed sites...." Based on data from sites with similar rainfall, topography, and soils in Wyoming where you have data showing this has already occurred, what is the estimated time period?

BE P. IV-13 - Heavy snows make sagebrush in smaller draws inaccessible in nearly all normal to severe winters. The last sentence of this section, which pertains to snow accumulation in draws, makes no sense - it doesn't logically follow the rest of the paragraph.

BF P. IV-14 - "While density is an important measurement, the more important factors on the site are cover, production, and availability." No matter what the production or availability, a stand of sagebrush with 10 plants per acre is not going to be good winter range for antelope. All factors have to be considered. No data indicating that this herd could be supported by lower density shrub stands on critical range exists to our knowledge.

BG P. IV-15 - "The value of undisturbed areas between pits, roads, and stockpiles is arguable. Pronghorn have adjusted to various mine activities at numerous western mines." Have any of these mines been in critical winter range? If not, can anyone rationally presume pronghorn in such areas will respond the same way?



BA Section IVB has been revised.

BB Section IVB has been revised.

BC Any fencing put up in association with mining and reclamation at Red Rim would have to be approved by OSM, BLM, and Wyoming DEQ. Because no current detailed mining and reclamation plan has been submitted for Red Rim, OSM cannot evaluate the precise locations, lengths, and orientations of potential fences nor can they quantify the number of pronghorn that might be lost due to fencing. Because no precise analysis of these impacts is possible, the discussion on secondary impacts recognizes fencing as a potentially significant impact.

BD See response to comment No. 2H. No quantitative data on the requirements of, and the potential for reestablishing, the Wyoming big sagebrush community in an environment similar to that of Red Rim exist to our knowledge. OSM's estimate of 10 to 12 years to partially reestablish shrub biomass production was made for the purposes of analysis, to evaluate the loss of habitat and the impacts to pronghorn. Ten to 12 years is considerably longer than is generally accepted for the reclamation of mixed shrub-forb-grass plant communities. In that time, because of the nature of Red Rim, impacts to vegetation there would not be completely and fully mitigated nor would the pronghorn critical winter range habitat carrying capacity be fully reestablished.

BE Section IVA has been revised.

BF The PED/EIS states that fewer shrubs than are now available on Red Rim could be sufficient to support pronghorn. However, shrub density per se, whether at or slightly reduced from the premining level, would not in itself ensure that the revegetated landscape would meet pronghorn requirements. The availability, production, and ground cover of shrubs are more important than their density in rendering them usable to pronghorn. See responses to comment Nos. 6BZ, 6CB, 100E, and 100U. Some existing mature sagebrush stands are so dense as to be less vigorous, healthy, and productive than existing younger, lower-density stands. These dense stands contain plants that are so large and close together that they may prevent pronghorn from moving through them to browse the stands' centers; revegetating the areas in which these stands occur at reduced densities of sagebrush could have the beneficial effect of allowing pronghorn improved access to plants in the middle of the stands.

BG Section IVB has been revised.

BH "Spoil piles and pits...might affect forage availability and pronghorn movements." A spoil pile with nothing growing on it is obviously going to decrease available forage. Pits, which are typically fenced, and even those that are unfenced, are going to restrict pronghorn movements.

BI "There is no evidence to suggest that revegetation of the Red Rim area is technologically infeasible." There has been no such allegation to our knowledge. The allegation concerns reclamation, which is different than revegetation. This document states that shrub re-establishment is probable, but the discussion concerns saltbush and shadscale, species which are not going to restore the winter range for pronghorn.

BJ This section makes no mention of studies where re-establishment of sagebrush in areas of 9 inches of precipitation has been documented. The issue is pronghorn winter range, and sagebrush is the most important component of that range. BLM staff specialists felt re-establishment of sagebrush during the life of the mine was impossible, and that nowhere in Wyoming has any such reclamation been demonstrated. Livestock-exclusion, and probably pronghorn exclusion, would probably be required for at least 10 years for even minimal success.

BK P. IV-16 - OSM and DEQ have predicted reclamation Scenario 1 on a 10 to 12 year turnaround, yet the last sentence of paragraph 3 states that the mining company will have to prove that this scenario is technically feasible. If it isn't currently feasible, we do not feel it should be included in this document.

BL "...the mining and reclamation plan would have to show that it (restoring pronghorn critical winter range) could be done before a permit to mine could be granted." We know of few mines denied a permit in Wyoming. Despite such stipulations, we are not confident a permit would be denied. In taking over the Federal responsibility via the state coal program, DEQ also accepted responsibility for unsuitability petitions such as this, and thus decisions affecting leasing.

BM Reduction of pronghorn in the Baggs Herd Unit would be undertaken whether or not Red Rim is mined, but much of the reduction in the herd would occur off Red Rim, where range conditions are not as good, and because hunter access is limited on the private lands in question and the associated BLM lands.

BN P. IV-17 - The section on Irwin's study of pronghorn distribution is interesting, but of little value because there was never a normal or severe winter during that study. Those data cannot be used to accurately predict what may happen in a bad winter.

As stated before, certain limitations dictate that pronghorn reduction in the Baggs Herd will be done mostly in areas other than Red Rim. It is not

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BH Section IVB has been revised.

BI Sections IVB and IVC have been revised.

BJ To our knowledge, carefully controlled studies of and research on various strategies for the regeneration of Wyoming big sagebrush under conditions similar to those at Red Rim do not exist. No major concerted effort in western surface coal mine reclamation has been undertaken to reestablish plant communities similar to those dominating the Red Rim pronghorn critical winter range. We disagree only partly with the BLM staff estimate that big sagebrush could not be reestablished during the life of the mine: sagebrush reestablishment using seeding methods has met with very limited success. (Kevin Allred (Native Plants, Inc., Salt Lake City, Utah, oral communication, 1983) and Rick Barth (Colorado School of Mines Research Institute, oral communication, 1985) have reported some success with seeding sagebrush.) Reestablishment of Wyoming big sagebrush using tubelings and transplants has been at least somewhat successful, but there is still some risk that reclamation could not be successfully performed. See responses to comment Nos. 2B, 2H, 5B, and 6E and appendix F.

BK See response to comment Nos. 2H and 3CA. For a more detailed discussion of OSM's predictions regarding how long reclamation would take under reclamation scenario 1, see appendix F and elsewhere in the PED/EIS. The paragraph and sentence to which you refer have been moved in the PED/EIS and incorporated into OSM's response to the first allegation in section IVC. The sentence to which you refer points out that, if Red Rim were not designated unsuitable for mining, before mining could commence, the permit applicant would have to demonstrate in its permit application that reclamation could be accomplished. Then, prior to permitting, OSM and Wyoming DEQ would have to find, in their review of that application, that the area could be reclaimed. Even at the permitting stage, when baseline data had been collected, analyzed, and incorporated into a reclamation plan for the area, the finding on the feasibility of reclamation would be based, at least to some extent, on professional judgement of the staff. The data upon which a finding of reclaimability is based are never absolute.

BO legitimate to use a program to reduce pronghorn on Red Rim to prevent their dying from loss of mined winter range as part of the justification for that mine. Such a massive antelope reduction on Red Rim would not be necessary if the critical winter range were not mined.

BP "OSM and DEQ estimate that a maximum of 4,053 acres of critical winter range would be unreclaimed at any one time." Given the lack of data on shrub restoration, we feel this statement is only opinion. It might be true if Reclamation Scenario 3 (no winter range restoration) is used.

BQ It is our opinion the selection of either proposed BLM alternative will not insure the maintenance of the population of antelope using the Rim. We have never agreed with either.

BR Paragraph 5 should be deleted from the text.

BS P. IV-20 - We disagree with the statement that the population objective is dependent solely on the carrying capacity of the winter ranges. While carrying capacity of a winter range is the limiting factor on a population, population objectives are often set at a much lower number due to other game management considerations. A pronghorn reduction program would not be undertaken to "protect habitat quality", but because mining of the winter range might eventually starve the pronghorn anyway. We suggest that all references to pronghorn reduction to fit a lower carrying capacity be deleted.

BT P. IV-21 - We disagree with the statement that with Scenario I, the hunting revenues lost would be "short term." Few organizations would consider loss of funds over a time period of 40 years "short term."

BU P. IV-22 - "There are no known data to quantify the exact number and types of topographic features that would be necessary to restore reclaimed lands...." Obviously, what exists there now is what is necessary. "Irwin and others (1983) stated that...are important during normal winters...." Irwin and his students did no research during what we consider to be a "normal" winter. All were mild.

BV "...premining topography would be restored to the extent technically possible." This statement indicates that if restoration of topography isn't technically possible, DEQ will not require it. This is not suitable for use as an analysis assumption. We suggest "premining topography will be restored."

BW Again, we dispute the idea that reclaimed lands would support any significant level of winter pronghorn use 10 to 12 years after planting. There is no evidence for this. We object to use of a pronghorn reduction program necessitated by a mine to justify that mine.



BL See response to comment No. 6N. In accordance with Section 523(C) of SMCRA, the Secretary of the Interior cannot delegate, through a cooperative agreement, his responsibility to designate Federal lands as unsuitable for surface coal mining operations. Therefore, the Red Rim petition as it relates to Federal lands is being processed by OSM; the petition as it relates to private lands was processed by Wyoming DEQ and Wyoming EQC under the approved State program. As stated in section C of the "Cover Sheet," section C of the "Summary," section ID, and chapter V, the Secretary of the Interior must make a decision on the petition as it relates to Federal lands. On May 22, 1985, Wyoming EQC decided by a vote of four to three not to designate any of the private lands within the petition area as unsuitable for surface coal mining operations.

BM Thank you for your comment.

BN The discussion of pronghorn distributions is presented to explain that different portions of the critical winter range have different carrying capacities for pronghorn. The discussion is not intended to accurately predict impacts to pronghorn.

BO This discussion has been revised to take into acccount the mortality suffered by the Baggs Herd during the winter of 1983-84.

BP See response to comment No. 6AI. The figure is a best professional estimate of OSM staff.

BQ Thank you for your comment.

BR Because Wyoming GFD gives no reason why this paragraph should be deleted, the paragraph has been retained. See response to comment No. 6BP.

BS Section IVA has been revised. OSM assumed that maintaining the quality of pronghorn habitat would be essential to maintaining pronghorn numbers at the highest desirable level.

BT See response to comment No. 2I.

BU See response to comment No. 2D.

BV Section IVC has been revised.

BW See response to comment No. 2H.

BX Reduction of pronghorn under reclamation Scenario 1 might be short-term, but we believe that scenario is impossible, since there is no evidence it can be done. We recommend it not be included in this document.

BY Pp. IV-25-45 - All of the reclamation possibilities noted here are theoretical. None have been attempted, let alone accomplished. We feel they do not contribute to the document.

BZ P. IV-46 - "It is doubtful, however, that the density is as important as the amount and availability of forage." We would ask that data or references be provided here, substantiating this statement.

CA P. IV-47 - "Researchers with Argonne National Laboratory working on test areas at the Jim Bridger Coal Mine in southwestern Wyoming have concluded that operators will probably be able to meet the OSM-mandated ten-year revegetation success responsibility period for arid sites...." That success is just to get some kind of vegetation to grow, not to restore shrubs. Obviously, the restoration of pre-mining shrub density remains in question. It is unwarranted to assume nearly 100% sagebrush survival in this area. Mortality rates in the Gillette area, where precipitation is over 12" are only 60 to 70 percent.

CB We do not agree that reduction of 50 percent or more in shrub density is a "modest reduction."

CC P. IV-48, Table IV-5 - We doubt that spending $48,000 per acre for reclamation can really be considered profitable. These costs, based on figures from the Seminoe No. 1 and No. 2 mines, are unrealistic. Those mines are not restoring critical winter range, nor large acreages of shrubs, so it is our opinion these costs are undoubtedly greatly underestimated.

CD Atriplex has not been shown to be an effective substitute for sagebrush on critical antelope winter ranges in Wyoming.

CE Pp. IV-50,51 - The EIS indicates that under Scenario 1, it may be possible to return the area to full production for critical pronghorn habitat "if all factors were optimal". The document suggests that it will take a minimum of 10 to 12 years after planting each reclaimed mine area. In fact, then, since mining will be occurring across Red Rim for 40-45 years, it may not be sufficiently reclaimed to full production for, at best, 50 to 60 years. Obviously, this presents a much different picture than merely stating, as was commonly done in the document, that reclamation will be possible in 10 to 12 years. We do not agree that critical pronghorn habitat can be restored in 10-12 years, using any techniques, much less those described in this EIS. There is no evidence anywhere in the West indicating this can be done. Therefore, it is our contention that a decision to destroy critical antelope winter range cannot be justified.

BX Based on the analyses in this PED/EIS, OSM concludes that reclamation under reclamation scenario 1 would not be technologically and economically infeasible. The uncertainties of and risks to the accomplishment of reclamation are described in response to comment No. 2B and in appendix F.

BY OSM performed the analyses presented in the PED/EIS in order to objectively respond to the allegation that microcontouring would be necessary to reclaim Red Rim. The analyses concern: (1) the existing topography, (2) wind patterns and snow accumulation, (3) mass and erosional stability, and (4) a comparison of the premining and postmining topographies under reclamation scenarios 1 and 3.

BZ The critical requirements for pronghorn forage are that it be available and of sufficient quality and quantity to meet pronghorn needs. The density of forage is of secondary importance to these concerns. See responses to comment Nos. 6BF, 6CB, 100E, and 100U.

The sentence you quote has been deleted from section IVC. The discussion to which you refer intends to state that the survival rate for big sagebrush transplanted using a tree spade is nearly 100 percent. The text has been revised to clarify this point.

CA Section IVC has been revised to indicate that OSM has reassessed tubeling survival rates and has found them to be lower than was thought; in consequence, the cost of reclamation using tubelings would be higher. For a discussion of factors affecting tubeling survival rates, see response to comment No. 6AQ.

See response to comment No. 6E. Also see the description of reclamation scenario 1 (appendix F) for a revised discussion of the probability of successful reclamation.

CB Although we are unable to find the term "modest reduction" in the vicinity of the pages you cite in your preceding and following comments, we agree that a 50-percent reduction in shrub densities would be more than "modest." Accordingly, all implications to this effect have been revised out of the PED/EIS. Postmining shrub density is not the only vegetation parameter that measures revegetation success. A 50-percent reduction in density would not necessarily correspond to a comparable loss in biomass production or forage availability. See responses to comment Nos. 6BF, 6BZ, 100E, and 100U.

CF P. IV-52 - There is no evidence to support the notion that it is possible to produce a more vigorous plant during reclamation so that reduced densities of shrubs will support these antelope.

CG We agree that suitable soils for replanting big sage will be very limited post-mining. How many acres can be reclaimed?

CH P. IV-54 - Exclusion of the Separation Creek area will help minimize impacts to grouse broods, but will have little impact on loss of important wintering sites for that species.

CI P. IV-55 - In our experience, the reclaimed areas will have to be fenced or wildlife and livestock will seriously hinder plant success. This means a further reduction in forage available for wintering antelope. Antelope will still be excluded from critical winter range.

CJ P. IV-56 - References are made to the Game and Fish having to reduce herd numbers to compensate for habitat losses due to the mining. However, simple reduction of numbers across the entire DAU will not necessarily reduce the numbers dependent upon Red Rim. It is likely that there would have to be herd reduction far below the desired objective to insure that a sufficient proportion of the pronghorn normally using Red Rim were removed, especially so if hunter access continues to be limited.

CK P. IV-57 - We agree that the loss of the topographic features of the rim will make it impossible for adequate soil/moisture regimes to be replaced.

CL P. IV-65 - The loss of ground water for over 100 years will seriously hinder any reclamation attempts. We recommend that OSM and DEQ should consider stipulating that the company will have to irrigate for that length of time to insure reclamation success.

CM Appendix F, P. F-2 - We are not willing to accept lower "more reasonable" densities of important winter food, big sagebrush, on critical winter range. This document proposes a reduction from 7,144 plants/acre to 2,000. We find this proposal unacceptable for the wildlife concerned.

Please contact us if we may be of further help.

Sincerely,

Francis Petera

FRANCIS PETERA
ASSISTANT DIRECTOR
OPERATIONS
WYOMING GAME AND FISH



CC Only the estimates of impacts to topography are based on data regarding the Seminoe No. 1 and No. 2 mines, which, as section IVC indicates, have topographic and geological settings similar to those of the Red Rim area. Estimates of revegetation costs are based on analyses performed by OSM for the PED/EIS. In the absence of specific reclamation goals and a site-specific permit application with detailed reclamation-cost projections, the PED/EIS reclamation-cost estimates can only be considered very approximate. Projections of the additional costs for baseline inventory, research studies, and planning to develop appropriate reclamation goals have been included in revised section IVC. See comment No. 2H.

CD The PED/EIS does not suggest that fourwing saltbush (Atriplex sp.) could be used as a substitute for sagebrush, particularly for Artemesia tridentata ssp. wyomingensis, in restoration of the pronghorn critical winter range on Red Rim. Reclamation scenario 1 assumes that little to no such substitution would occur. Certainly, the various species of the genus Atriplex are much less difficult to establish than are the Artemesia species or subspecies.

CE See responses to comment Nos. 2H, 6AI, 6BD, and 100W.

CF See responses to comment Nos. 6BF and 100E. At certain mine-reclamation sites (Western Energy Company, Rosebud mine, and Utah International, Inc., Navajo mine), individual plants within a given shrub species grow more vigorously on disturbed areas than do other individuals of the same species on surrounding undisturbed land. However, other environmental conditions being equal, the long-term vigor of most individual plants within a given shrub species or subspecies on disturbed areas is generally less than that of plants on undisturbed sites that are in good or excellent range condition.

CG The detailed soil inventory upon which such an acreage calculation would have to be based has not been performed for the Red Rim area. Assuming that all available, suitable soil for reestablishing Wyoming big sagebrush is carefully salvaged, and that topsoil and soil-salvage material for reestablishing Wyoming big sagebrush is hauled directly, the postmining acreage of big sagebrush-dominated soils should be nearly equivalent to the premining acreage.

CH Section IVD has been revised.

CI Section IVD has been revised. See response to comment No. 100AA.

**CJ** The text accurately states that Wyoming GFD would reduce the population-management objective of the pronghorn herd to some lower level. As a result, revenues from license sales would change (probably, initially, by increasing and then, subsequently, by decreasing).

**CK** Thank you for your comment.

Given the way in which your comment is worded, we assume you intend "reclamation" to refer to revegetation of mine spoils and "ground water" to refer to subsurface water that occurs in soils and geologic formations that are fully saturated.

**CL** Topographic and potentiometric maps for the petition area (Larson and Zimmerman, 1981) indicate that ground water in the area ranges from 25 feet to 325 feet below ground surface. The 25-foot depths are common along the alluvial areas of Separation Creek; 80- to 325-foot depths are common on all upland areas. Because ground water occurs so deep below the petition-area surface, it is very unlikely that the vegetation currently growing in the area uses ground water except in the limited alluvium along Separation Creek. Therefore, the loss of ground water for 100 years from the Fort Union Formation would not affect, one way or another, the need to irrigate areas that are to be revegetated. Moreover, BLM has established a buffer zone on either side of Separation Creek. This buffer zone would protect Separation Creek alluvium.

**CM** Appendix F and section IVC have been revised to indicate that big sagebrush would be reestablished at a density of 3,000, rather than 2,000, plants per acre. The 7,144 plants per acre premining density figure to which you refer is not sufficiently accurate to serve as a basis for calculating the densities of Wyoming big sagebrush that would have to be established on the mined area. See response to comment No. 100U.

FP:HBM:blg
cc: Game Division
Fish Division

Mr. Patrick Boles
DEQ/LQD
401 West 19th Street
Cheyenne, Wyoming 82002

Mr. Dick Hartman
State Planning Coordinator
2320 Capitol Avenue
Cheyenne, Wyoming 82002

STATE OF WYOMING
OFFICE OF THE GOVERNOR
CHEYENNE 82002

ED HERSCHLER
GOVERNOR

February 4, 1985

Mr. John Crow
Hearing Examiner
Environmental Quality Council
Room 304
Emerson Building
2001 Capitol Avenue
Cheyenne, WY 82002

Dear Mr. Crow:

39

Enclosed for your information and inclusion into the Red Rim unsuitability hearings record is a letter I provided to the Bureau of Land Management in 1981. Additionally, I believe that Mr. Dale Strickland of the Game and Fish Department has suggested that if my proposals are followed that there would be a good chance that the Game and Fish Department could maintain its present pronghorn management objectives in the Baggs area.

Thank you for your comment.

I would hope that you include this as part of the Red Rim hearing record.

Yours sincerely,

Ed Herschler

EH/wwt

Enclosure

WYOMING
EXECUTIVE DEPARTMENT
CHEYENNE

ED HERSCHLER
GOVERNOR

July 27, 1981

Mr. Maxwell T. Lieurance
State Director
Bureau of Land Management
Box 1828
Cheyenne, WY 82001

Dear Mr. Lieurance:

I have had the opportunity to review the data you have supplied concerning the "suitable pending" status of the Red Rim Tract. Based upon that review, I feel that the Red Rim Tract could be declared as suitable for mining as outlined in 43 CFR 3461, et. seq.

Regardless of this finding, mining in the Red Rim area will necessitate the development of a mitigation strategy to provide impact mitigation for wildlife in the area. To that end, I am requesting that the following be given consideration by the Bureau of Land Management when the Red Rim Tract is offered for lease.

I. PRE-MINING

a. The successful lessee, in conjunction with the Bureau of Land Management (BLM), will continue current studies to adapt and refine economically feasible mitigation measures for antelope during mining and reclamation. These measures will be included in the mine plan submittal required by 43 CFR 3400 and the application for a mining permit submitted to the State of Wyoming, Department of Environmental Quality (DEQ).

b. The successful lessee will design mine facilities, where possible, to avoid areas important to wintering antelope.

II. DURING MINING OPERATIONS

a. The successful lessee, in cooperation with the BLM, will attempt to minimize identified impacts

to antelope through the application of economically feasible and practical methods to:

- 0 improve habitats usable by antelope away from the mining operation,
- 0 develop water sources for use by wildlife,
- 0 minimize fencing in order to promote accessability by antelope to mine site,
- 0 establish an educational program for mine personnel regarding wildlife laws and company wildlife programs,
- 0 coordinate with Wyoming Game and Fish Commission to allow hunting of antelope in select areas within the lease block if hunter safety and mine safety are not jeopardized.

b. The Bureau of Land Management will attempt to minimize identified impacts to antelope by:

- 0 increasing forage for use by wintering antelope,
- 0 increasing antelope accessability to seasonal ranges through the establishment of gates and appropriate fencing policy, and
- 0 improving wildlife habitat areas adjacent to the Red Rim and China Butte tracts during the mining and reclamation phases for these tracts.

III. POST MINING/RECLAMATION

a. The successful lessee will develop and implement the reclamation plan on federal lands to promote rapid return of the mined lands to antelope winter range by:

- 0 establishing a vegetative community valuable to antelope,
- 0 providing water sources, where feasible and practical, for wildlife and livestock use,
- 0 cooperating with the BLM to reestablish antelope winter range.



b. The BLM will manage the lease block, after mining, as antelope winter range in conjunction with other appropriate uses.

I am forwarding a copy of this letter to Mr. Walt Ackerman at the Land Quality Division of DEQ, and Mr. Karl Thomas at the Wyoming Game and Fish Commission for their information. Additionally, the successful lessee will also have to comply with the Wyoming mining and reclamation standards. And with this letter, I am requesting that the above mentioned state agencies consider the outlined wildlife mitigation plan in their review of the mine permit application.

If you should have any questions concerning this approach, please contact Mr. Warren White of my staff.

Thank you for providing me with the opportunity to comment on the Red Rim Tract.

Yours Sincerely,

EB/wwt

cc: Walt Ackerman
Karl Thomas
Warren White

8

CHAIRMAN
GOVERNOR ED HERSCHLER

COMMISSIONERS
OSCAR E. SWAN
BERN WHITTAKER
RICHARD S. CROSS
[redacted]
GARY B. GLASS

# The State of Wyoming

OFFICE OF
OIL AND GAS CONSERVATION COMMISSION
STATE OIL AND GAS SUPERVISOR
123 SOUTH DURBIN
P. O. BOX 2640
CASPER
82602

STATE OIL AND GAS SUPERVISOR
DONALD B. BASKO

EX OFFICIO DIRECTOR OF
OIL AND GAS CONSERVATION

RECEIVED TECHNICAL CENTER
1983 NOV -4 AM 9 15
OSM-WTC

November 2, 1983

Mr. Charles Albrecht
OSM, Western Technical Center
1020 15th Street
Denver, CO 80202

Dear Mr. Albrecht:

Today I received a copy of a legal notice from the Department of Interior, Office of Surface Reclamation and Enforcement and the Wyoming Environmental Quality Council, regarding withdrawal of certain lands from the Red Rim Area, Carbon and Sweetwater counties, Wyoming, from surface coal mining operations.

I certainly have no objection to prohibition of surface mining on those lands, although I am not exactly certain as to where they are located. My only concern is that if such a prohibition is adopted that it not in some manner be extended to oil and gas operations prohibiting that type of activity on those same lands. As you are aware, a drilling operation utilizes less surface area than does a coal mining operation, and because of the small size of a drill-site, those lands can be readily reclaimed to nearly their original state without insurmountable problems.

Very truly yours,

Donald B. Basko,
State Oil and Gas Supervisor

DBB:wal

cc: Mr. Patrick Boles
Wyoming DEQ
Equality State Bank Building
401 W. 19th Street
Cheyenne, WY 82002

A On November 7, 1983, OSM informed the Wyoming Oil and Gas Conservation Commission by letter that an unsuitability designation by the Department of the Interior or Wyoming EQC would apply only to surface coal mining operations and would have no effect on oil and gas operations.

## C. INDIVIDUALS AND ORGANIZATIONS

March 12, 1982

Mr Charles Albrecht
Western Technical Center
Brooks Towers
1020 - 15th St.
Denver, Colo.

Please send OSM/BLM documents regarding coal mining at Red Rim, near Rawlins, Wyo.

I am not in favor of coal mining in this area - I am sure it would result in deterioation of winter and summer habitat for antelope and deer.

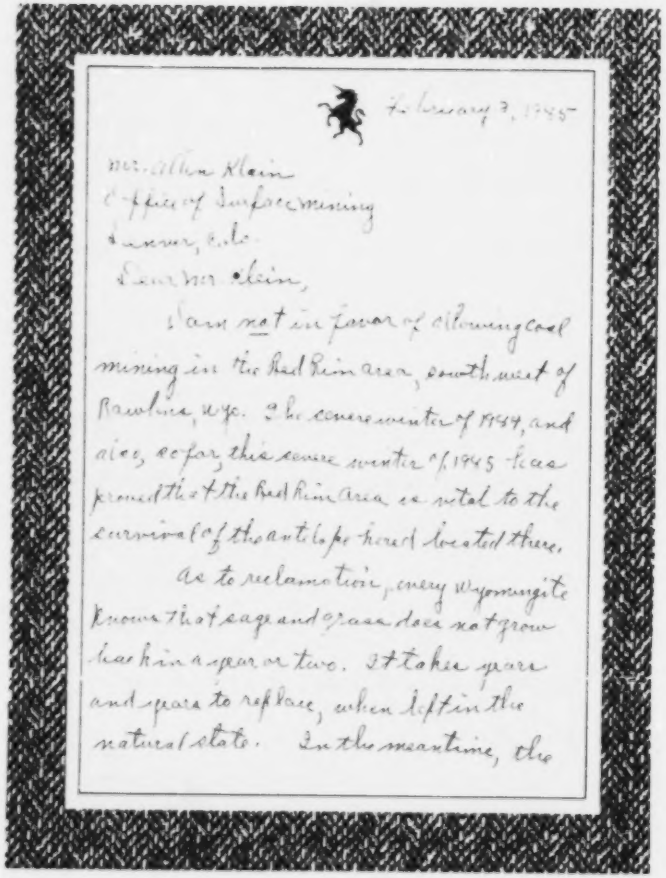
It has been the favorite hunting grounds for three generations of my family, and I want my grandchildren to have the chance to enjoy this privilege.

Sincerely,

Mrs. Frances Black
PO Box 567
Rawlins
Wyo 82301

45

Thank you for your comment.



February 7, 1985

Mr. Arthur Klein
Office of Surface mining
Denver, Colo.

Dear Mr. Klein,

I am not in favor of allowing coal mining in the Red Rim area, southwest of Rawlins, Wyo. In the winter of 1984, and also, so far, this winter of 1985 it has proved that the Red Rim Area is vital to the survival of the antelope herd located there.

As to reclamation, every Wyomingite knows that sage and grass does not grow back in a year or two. It takes years and years to replace, when left in the natural state. In the meantime, the

A

A We concur that the time required to partially reestablish shrub stands for pronghorn use on the Red Rim site would be considerably longer than is generally accepted to reestablish plant communities on mined lands. As stated in section IVA, OSM projects that the replanted mine-disturbance areas would not support any pronghorn use for 10 to 12 years following planting. However, because the mine area would be mined in parcels, pronghorn would continue to use those parcels not being mined or reclaimed. Under any of the three reclamation scenarios analyzed in chapter IV, the Baggs Herd population would be reduced over the long term (longer than 45 years), but the herd would not be exterminated. See responses to comment Nos. 2H and 6BD.

antelope have starved or moved away, and the largest herd of antelope in North America, is gone forever.

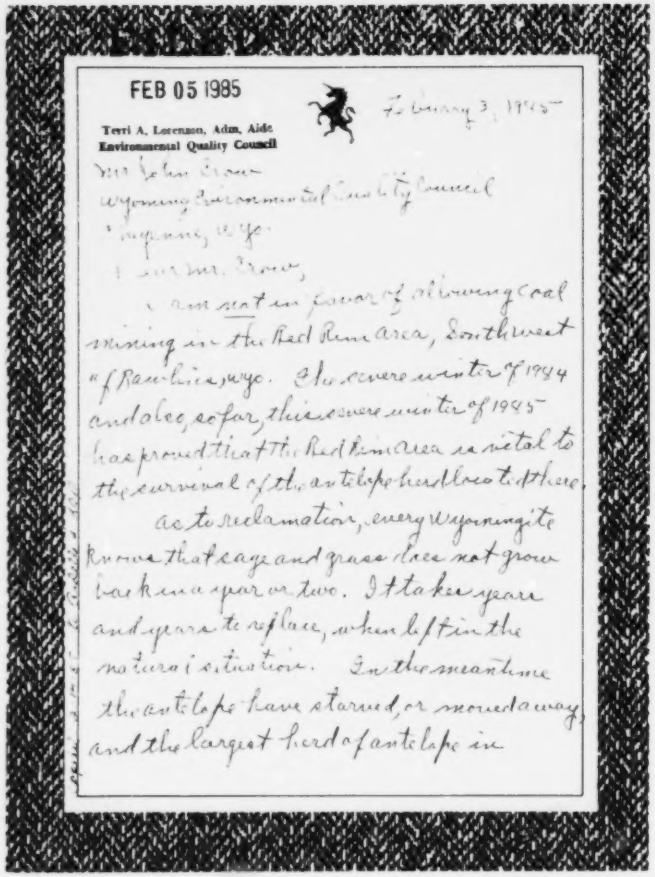
This terrible loss is not worth the comparatively few dollars gained by the landowner, for mining a few leases of marginal coal.

I pray this loss will never happen.

Sincerely,

Mrs Fred (Frances) Black
PO Box 567
Rawlins
Wyo 82301

47



FEB 05 1985

Terri A. Lorenzon, Adm. Aide
Environmental Quality Council

February 3, 1985

Mr. John Crowe
Wyoming Environmental Quality Council
Laramie, Wyo.

Dear Mr. Crowe,

I am not in favor of strip mining coal mining in the Red Rim area, Southwest of Rawlins, Wyo. The severe winter of 1984 and also, so far, this severe winter of 1985 has proved that the Red Rim area is vital to the survival of the antelope herds located there.

As to reclamation, every Wyomingite knows that sage and grass does not grow back in a year or two. It takes years and years to replace, what is left in the natural situation. In the meantime the antelope have starved or moved away, and the largest herd of antelope in

A

A See response to comment No. 10A.

in all America is gone forever.

The terrible loss is not worth the comparatively few dollars gained by the landowner, for mining a few leases of marginal coal.

I pray this loss will never happen.

Sincerely,

Mrs Frances W. Black
P.O. Box 567
Rawlins
Wyo. 82301

*The University of Mississippi*
Law Center
University, Mississippi 38677

School of Law
Faculty

(601) 232-7361

January 25, 1984

Casper Field Office
Office of Surface Mining Reclamation
and Enforcement
U.S. Dept. of the Interior
Post Office Box 1420
Mills, WY 82664

Dear Sir/Ms:

I am writing you in support of the above-captioned petition filed by the National Wildlife Federation and the Wyoming Wildlife Federation dated May 7, 1982, and supplemented July 6, 1982.

50

A As is more fully set out in the above petition and supplement, all of 10,160 acres of private, non-federal land in question in the proposed Red Rim coal lease tract in Carbon and Sweetwater Counties, Wyoming, is included in a larger area which has been officially determined critical habitat for a sub-herd of pronghorn antelope (part of the Baggs herd). Mining would result in displacement and crowding of these animals which in turn would result in nutritional deficiencies, low reproductive rates, and during severe winters, certain antelope die-offs in numbers directly proportional to the amount of habitat lost to mining.

B Furthermore, it does not appear that the mining applicant, Rocky Mountain Energy Company, has adequately demonstrated that if mining should occur, reclamation of the subject land to its highest previous use as required by law is biologically and economically feasible. Effective return to pre-mining natural conditions of the habitat lost would require contouring of the ground surface to recreate drainage, draw and vegetative patterns, a situation technologically and economically difficult or impossible to realize on a lasting basis. The likelihood of restoring the habitat quickly, a necessity given the reality that one severe winter with unrestored habitat would cause stress and could cause major population decimation, has not been demonstrated. In fact, even if total reclamation were possible, it

A Your statement is not correct. Not all of the private land within the petition area is inside the critical winter range delineated by Wyoming GFD. See figures I-2 and II-1.

B No application for a permit to mine coal has been submitted to OSM by any party for the Red Rim area. As stated in section IC, the Federal coal underlying the petition area has not been leased pending a decision on the unsuitability petition. Should the Federal tract be offered for lease bids, RME, a subsidiary of Union Pacific Corporation and the owner of all coal underlying the private lands within the petition area, could not enter a bid on the tract owing to its affiliation with the railroad (Department of the Interior Solicitor's Opinion M-36945).

Casper Field Office
January 25, 1984
Page Two

C could take up to 40 years after the end of the projected 25 year mine life to accomplish. (Of course, land being currently mined would not be available for reclamation.) Reclamation costs could range beyond $100,000 per acre, bringing into serious question the economic efficiency of mining such fragile lands.

For the above stated reasons, it is requested that the National and Wyoming Wildlife Federations' petition be granted, and that the subject lands be designated unsuitable for mining.

Sincerely yours,

Eugene C. Bricklemyer, Jr.
Research Associate Professor
Aquatic Resource Conservation

ECBj:rf

C The uncertainties of and risks to the accomplishment of reclamation are described in response to comment No. 28 and in appendix F. The reclamation cost estimates in Section IVC have been revised.

FILED

JAN 28 1985

Terri A. Lorenzon, Adm. Asst.
Environmental Quality Council

SINCLAIR WY
JAN 25 1985
82334

John Crow
Environmental Quality Council
122 W. 25th St.
Herschler Building.
Cheyenne, WYO. 82002

Please do not allow mining of coal in the Red Rim area Save the Antelope Wintering area for them to survive in.

Dana Butler
Rawlins, Wyo.
82301

Box 155

Thank you for your comment.

March 12, 1984

Casper Field Office
Office of Surface Mining Reclamation
and Enforcement
U.S. Dept. of the Interior
PO Box 1420
Mills, Wyoming 82664

Dear Madam or Sir:

I urge you to protect our wildlife as an integral part of our environmental heritage by supporting the petition of the Wyoming Wildlife Federation and the National Wildlife Federation to have the critical antelope habitat on the Red Rim tract declared unsuitable for mining.

The pathetic situation that occured on Taylor Lawrence's ranch this past winter must not be allowed to happen again. Wyoming is a very special place for those of us who have visited the state and seen the beauty of it's environment.

I'm sure you agree that your responsibilities include support for permanent protection of this particular area and others that allow Wyoming to remain the unique state that it is for both humans and animals.

Thank you for your support.

Sincerely,

Janice Campion
7302 Maple Avenue
Takoma Park, MD 20912

Thank you for your comment.

Feb. 4, 1964

Gentlemen

Please support the National Wild Life Federation petition to have the Red Rim Tract declared unsuitable for mining.

Please make this request a matter of record.

Clifford D Clymer
571 Belvidere Rd.
Phillipsburg, N.J.
08865

Thank you for your comment.

16 Jan 1984

SIR

PLEASE ADD ME TO THE LIST OF CITIZENS SUPPORTING THE NATIONAL WILDLIFE FEDERATIONS POSITION DECLARING THE CRITICAL ANTELOPE HABITAT ON THE RED RIM UNSUITABLE FOR MINING."

Sincerely,

Chris Cox
144 MOUNTAIN RD.
HOLYOKE, MA 01040

Thank you for your comment.

55

COLORADO WILDLIFE FEDERATION JMT
1730 PEARL
DENVER CO 80218 07AM

4-033765 S341 12/07/83 ICS IPMBNGZ CSP CASA
3038302557 MGM TDBN DENVER CO 131 12-07 0334P EST

THE OFFICE OF SURFACE MINING
950 PENDELL
CASPER WY 82602

THE COLORADO WILDLIFE FEDERATION EXPRESSES APPRECIATION FOR YOUR CONCERN AND THE ACTION YOU ARE TAKING TO ALLEVIATE THE CRITICAL WINTER FOOD SITUATION AND STRESS FOR HUNDREDS OF ANTELOPE IN THE RED RIM AREA IN WYOMING CREATED BY A WOVEN WIRE FENCE ON FEDERAL, STATE AND PRIVATE PROPERTY WHICH BLOCKS NORMAL MIGRATION. WE ADD SUPPORT TO YOUR EFFORTS AND ENCOURAGE IMMEDIATE ACTION TO REMOVE SUFFICIENT SEGMENTS OF THE FENCE TO PERMIT MOVEMENT OF ANTELOPE TO THEIR NORMAL WINTER RANGES. THE WELFARE OF WYOMING ANTELOPE HERDS ARE OF HIGH IMPORTANCE TO COLORADO AS WELL AS TO WYOMING AND THE NATION. WE REQUEST EVALUATIONS TO DETERMINE HOW THIS INHUMANE CIRCUMSTANCE COULD HAVE BEEN ALLOWED TO HAPPEN IN THE FIRST PLACE.
RESPECTFULLY,
BOB BLACK, PRESIDENT, CWF

1535 EST

MGMCOMP MGM

Thank you for your comment.

COLORADO WILDLIFE FEDERATION JMT
1738 PEARL
DENVER CO 80218 07AM

4-033806S341 12/07/83 ICS IPM3N3Z CSP CHEA
3038302557 MGM TD3N DENVER CO 131 12-07 0334P EST

ROBERT SUNDIN, DIRECTOR
WYOMING DEPT OF ENVIRONMENTAL QUALITY
401 WEST 19TH ST
CHEYENNE WY 82002

THE COLORADO WILDLIFE FEDERATION EXPRESSES APPRECIATION FOR YOUR CONCERN AND THE ACTION YOU ARE TAKING TO ALLEVIATE THE CRITICAL WINTER FOOD SITUATION AND STRESS FOR HUNDREDS OF ANTELOPE IN THE RED RIM AREA IN WYOMING CREATED BY A WOVEN WIRE FENCE ON FEDERAL, STATE AND PRIVATE PROPERTY WHICH BLOCKS NORMAL MIGRATION. WE ADD SUPPORT TO YOUR EFFORTS AND ENCOURAGE IMMEDIATE ACTION TO REMOVE SUFFICIENT SEGMENTS OF THE FENCE TO PERMIT MOVEMENT OF ANTELOPE TO THEIR NORMAL WINTER RANGES. THE WELFARE OF WYOMING ANTELOPE HERDS ARE OF HIGH IMPORTANCE TO COLORADO AS WELL AS TO WYOMING AND THE NATION. WE REQUEST EVALUATIONS TO DETERMINE HOW THIS INHUMANE CIRCUMSTANCE COULD HAVE BEEN ALLOWED TO HAPPEN IN THE FIRST PLACE.
RESPECTFULLY,
BOB BLACK, PRESIDENT, CWF

1536 EST

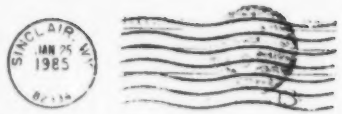
MGMCOMP MGM

57

Thank you for your comment.

19

SINCLAIR, WY
JAN 25
1985
82114



Office of Surface
Mining
P.O. Box 1420
Mills, WY 82644

© USPS 1981

Yo no me gustó
El Red Rein for
Coal

J Cope
Box 425
Rawlins, Wyo

Thank you for your comment.

RUSSELL T. CUSTER
85 WOODLAND AVE
RAMSEY NJ 07446 07AM

4-017975S341003 12/07/83 ICS IPMMTZZ CSP CASB
2 2017963600 MGM TDMT FAIR LAWN NJ 12-07 1213P EST

WILLIAM THOMAS, DIRECTOR CASPER FIELD OFFICE
OFFICE OF SURFACE MINING
PO BOX 1420
MILLS WY 82664

THIS IS A CONFIRMATION COPY OF A TELEGRAM ADDRESSED TO YOU:

THE ACTION OF RANCHER TAYLOR LAWRENCE IN FENCING OUT ANTELOPE MIGRATING TO THE RED RIVER-CHINA BUTTE AREA IS ARROGANT HYPOCRITICAL AND DEFINITELY NOT IN THE PUBLIC INTEREST. THE BLOCKING OF ANTELOPE MIGRATING WAS OBVIOUSLY DONE TO EXCLUDE THEM FROM MINING ENVIRONMENTAL STUDY NOW UNDERWAY SINCE ANTELOPE AND CATTLE DO NOT FEED ON SAME VEGETATIONS. TAXPAYING CITIZENS OF THE US HAVE HAD A BELLY FULL OF SUCH DISHONESTY AND SELF INTEREST. RED RIVER-CHINA BUTTE AREA MUST BE DECLARED UNSUITABLE FOR MINING AND FENCE TAKEN DOWN IMMEDIATELY. WILL BE VITALLY INTERESTED IN YOUR ACTIONS CONCERNING THIS MATTER
RUSSELL T. CUSTER
85 WOODLAND AVE
RAMSEY NJ 07446

1214 EST

MGMCOMP MGM

59

Thank you for your comment.

# 21

WU INFOMASTER 1-0??????A341 12/07/83
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PMS WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY RPT DLY MGM, DLR
401 WEST 19 ST
CHEYENNE WY 82002

THE ACTION OF RANCHER TAYLOR LAWRENCE IN FENCING OUT ANTELOPE MIGRATING TO THE RED RIVER-CHINA BUTTE AREA IS ARROGANT HYPOCRITICAL AND DEFINITELY NOT IN THE PUBLIC INTEREST. THE BLOCKING OF ANTELOPE MIGRATING WAS OBVIOUSLY DONE TO EXCLUDE THEM FROM MINING ENVIRONMENTAL STUDY NOW UNDERWAY SINCE ANTELOPE AND CATTLE DO NOT FEED ON SAME VEGETATIONS. TAXPAYING CITIZENS OF THE US HAVE HAD A BELLY FULL OF SUCH DISHONESTY AND SELF INTEREST. RED RIVER-CHINA BUTTE AREA MUST BE DECLARED UNSUITABLE FOR MINING AND FENCE TAKEN DOWN IMMEDIATELY. WILL BE VITALLY INTERESTED IN YOUR ACTIONS CONCERNING THIS MATTER

RUSSELL T. CUSTER
85 WOODLAND AVE
RAMSEY NJ 07446

Thank you for your comment.

Office of Surface Mining
William Thomas
Director of Field Office

December 6, 1983

Dear Sir,

This letter is in regards to the 37 mile long fence put up by someone to prevent the migration of Antelopes to their winter grazing ground. I urge you to immediately pass on the mining rule and declare the area in question as unsuitable for mining as it is the natural habitat of the antelope.

It is immoral and I believe it is illegal to hinder an animal in its migration. When they put in the Alaskan Pipe line in they had to do it in such a way as not to hinder the migration of the caribou. I myself cannot understand the depravity of an individual or individuals to deliberately put a fence up in order to destroy a group of animals. Anybody with enough money to put up 37 miles of fence certainly is not in need of more money. If they are they should go on welfare.

Thank you for your comment.

Yours truly
William P. Darr

Grand rapids, Michigan

2059 Plainfield N.E.

49505

Request has been made by the Wyoming Wild Life Federation and the National Wildlife Federation to Rule this land as unsuitable for mining.

Wyoming is going to look bad in the eyes of the world if this fence stays up.

Wyoming Department of Environmental Quality

December 6
1983

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Yours truly
William F. Darr
Grand Rapids, Michigan
2059 Plainfield N.E.
49505

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Wyoming is going to look bad in the eyes of the world if this fence steys up.

January 17,1985

Office of Surface Mining Reclamation and Enforcement

Western Technical Center
2d Floor, Brooks Towers,
1020 - 15th Street, Denver, Colorado 80202

Mr. Allen D. Klein
Dear Sir,
On the question of allowing the mining of Surface Coal at the Red Rim Area near Rawlins, Wyoming. I have only a brief comment to make. It probably took nature 10,000 years to make the Red Rim Area suitable for Antelope and other wild life. If you allow the surface to be torn up for the satisfaction of a few individuals the Antelope and other wild life will be destroyed. They will mine for 10, twenty or thirty years and then move on. They will leave the area devastated with very little wild life to set for 10,000 more years before nature can heal the wounds made by the miners.

Thank you for your comment.

Yours Truly,
William F. Darr

William F. Darr
2059 Plainfield N.E.
Grand Rapids, Michigan
49505

23

Jan.31,1984

United States Department of the Interior
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado

Attention: Charles Albrecht

Dear Sir,

This is in regards to the inhuman fence put up to stop the migration of Antelope to their Winter Grazing Grounds.
In view of this I recommend that the government acquire this land as cheaply as possible and make a permanent park out of it and not allow mining or cattle and sheep grazing on it. We need the antelope for future generations. I believe that there is plenty of low cost coal in America without disturbing the Antelope. My opinion of these individuals who put up the fence is very low.

Thank you for your comment.

Yours Truly,

William F. Darr

2059 Plainfield N.E.
Grand Rapids, Michigan
49505

William F. Darr

# Defenders OF WILDLIFE

Patrick H. Boles
Red Rim Petition Coordinator
Wyoming Department of Environmental Quality
401 West 19th Street
Cheyenne, Wyoming 82002

February 4, 1985

Following are comments of Defenders of Wildlife concerning the petition to not allow mining of coal in critical pronghorn antelope habitat in the Red Rim area:

**A** This petition, filed by Wyoming and National Wildlife Federations in 1982, marks the first time unsuitability criteria for mining has been tested anywhere in the United States. By law, those filing a petition are entitled to a hearing within 10 months of the filing date. By now, nearly three years later, it has become obvious that various government agencies who are involved with mineral extraction are bitterly opposed to drawing a line, anywhere, that might help to preserve wildlife habitat.

**B** Of note, Outdoor Wyoming; recreation, tourism, hunting, fishing, is Wyoming's second largest industry, after minerals. Certainly wildlife is the very heart of this industry. Further, Outdoor Wyoming is our most easily renewable resource. Simply preserve habitat, provide some management and protection, and this resource will continue to provide millions of dollars to the State of Wyoming, long after our mineral resources have been burned or hauled away. But this fact seems to have received little to no consideration in the Red Rim EIS.

**C** The hearing on this petition was originally scheduled for Dec. 6, 1983, and then postponed until April 9, 1984. Then, the scheduled April hearing was postponed, indefinitely. This postponement seems to have been an arbitrary decision and casts doubt on the legality of the entire hearing process since the National Wildlife Federation was not even consulted prior to the postponement. Please comment.

**D** In a December 7, 1983 letter to "interested parties," Allen D. Klein, Administrator of Western Technical Center, announced that the December 6th hearings had been postponed and apologized for any inconvenience this postponement may have caused us. Of course, this letter was a bit after the fact, since those of us who drove to Rawlins to attend the hearing had already learned it had been postponed. Is there some valid reason that notification of postponement could not have been mailed sooner?

**A** Numerous unsuitability petitions have been filed nationwide under Section 522 of SMCRA.

**B** Section IVB has been revised to discuss the revenues generated by hunters hunting pronghorn in Wyoming.

**C** As stated in revised section IB, the April 9, 1984, hearing was postponed by Wyoming EQC at Governor Herschler's request to allow additional time for settlement negotiations among all parties to the petition.

**D** As stated in the December 7, 1983, letter to which you refer, on December 2, 1983, the petitioners and RME requested a continuance of the scheduled December 6, 1983, hearing until at least February 6, 1984. Wyoming EQC, with OSM concurrence, granted this request. Owing to the late date of the postponement (4 days prior to the original hearing date), OSM and Wyoming DEQ could not notify all interested parties of it prior to December 7.

GREAT BASIN OFFICE • BOX 507, ROCK SPRINGS, WYOMING 82901 • (307) 362-5379
NATIONAL OFFICE • 1244 NINETEENTH STREET, NW • WASHINGTON, DC 20036 • (202) 659-9510

65

E

It seems obvious that interminable delays in the hearing process were engineered to quell public outrage over the Red Rim fence and the proposal to destroy critical habitat by mining. Marching orders appear to be, "ignore and frustrate 'em and they'll go away." And nothing points out the fact that public concerns were not welcome more than the scheduled January 23, 7:30 pm public comment period, advertized in the newspapers.

People from Rock Springs and Green River drove to Rawlins on a darned cold night to participate in the "Public Comment" part of the hearing. Upon arrival, they learned that at 6:45 pm, the hearing had been cancelled. Whatever legitimacy and credibility enjoyed by government agencies connected with this issue has certainly gone down the drain. Please explain why any findings on this petition should not be held in abeyance until the public is allowed to to voice their concerns at a formal hearing?

E

By letter dated December 20, 1984, OSM notified you and all other parties interested in the Red Rim unsuitability petition that a hearing on the petition and PED/EIS would be held commencing at 9 a.m., January 23, and would continue, possibly into January 24 and 25, until complete. Confusion over the hearing time resulted from a January 23 Rawlins Daily Times newspaper article, which stated that the hearing would commence at 7:30 p.m. that night. Unfortunately, that newspaper ariticle was in error. On January 24, the second day of the hearing, OSM staff members talked to the reporter who wrote the article. According to him, he based his article on a news release issued by the National Wildlife Federation, one of the petitioners in the Red Rim proceeding; he was unaware of the three correct legal notices of the hearing that OSM had printed in the Rawlins Daily Times on December 19 and 26, 1984, and January 16, 1985.

Although not recognized as such in the hearing process, the fence, built by Taylor Lawrence, does constitute a large part of this issue. Obviously, the fence was constructed to kill proghorn antelope. Since construction of this barrier was such that it precluded antelope from jumping over, or crawling under, to reach vegetation that meant survival, there can be no argument that the intention was to kill antelope.

F

During the hearing, Lawrence's attorney stated they are willing to discontinue cattle grazing on some of the Red Rim land to provide more forage for antelope. Given past performance, it is our opinion that even a grain of salt is too much for this statement to be taken with.

F

See response to comment No. 100G. See comment No. 112D.

Futher, since the fence is a part of this issue and Bureau of Land Management (BLM) lawyers have stated that the fence may be illegal, why must the public pay for laying down and putting up portions of this fence? In late 1984, BLM and Wyoming Game and Fish personnel laid down a small portion of the fence, too late to save the antelope. The next spring, these same people put the barrier back in place. Last fall, eight miles of fence, which required considerable man power, was dismantled, and according to an agreement with Lawrence, in the spring the public will pay to have the fence made antelope-proof again. Is this a legitimate use of public money?

G

Depending on which study you read, enough coal has been leased on our public and private lands to supply this countrie's needs for the next 75 to one hundred years. Currently, and into the foreseeable future, there is no market for Red Rim coal. Until a need for this resource can be proven, and even without a petition, it would seem that allowing destruction of critical wildlife habitat to mine a product that is not needed approaches the outer limits of lunacy.

G

See sections IIIB and VA for discussions of the supply of and demand for petition-area coal.

Further, there is no proof , and in fact it is very unlikley that after mining, Red Rim can be reclaimed to provide vegetation, especially big sage, to sustain wintering antelope. If it

H can be proven feasible to grow big sage on spoil piles at Red Rim, experts estimate it would require from two to five decades before before the plants could provide winter sustenance for the Red Rim antelope herd. Since there is no foreseeable need for this coal, why not preclude mining for now and begin a research project to learn if big sagebrush and other species of vegetation critical to wildlife can be artificially propagated on Red Rim?

Wyoming provides habitat for the largest herds of pronghorn antelope in the United States, and probably more than all other states combined. From the minerals fraternity we frequently hear, since Wyoming has lot of this or that kind of wildlife, we're not going to impact these populations with a few mines, roads, drill pads, etc. No doubt, other states agreed with this philosophy, until their wildlife became something that used to be. Of interest, many states are now in the process of transplanting various species of wildlife from Wyoming, to re-establish herds that were lost.

Wyoming is in the enviable position of having it's cake and eating it too, providing that those agencies to whom we have entrusted our future are able to see beyond tomorrow and down the road aways. Probably Wyoming is blessed with more mineral resources than any other state, and certainly, Wyoming is the Wildlife State. We can extract much of our mineral wealth, and preserve our wealth of wildlife, providing that development proceeds in a logical, responsible, eithical manner.

67

I If Red Rim is mined, then habitat that was not so critical before, becomes more critical. If we cannot draw the line on and preclude mining of very critical habitat, then how will less critical habitat fare?

Defenders of Wildlife supports this petition of unsuitability for mining.

Thank you for inviting our comments, although it does appear you certainly did not want to see our faces at the formal hearing.

Dick Randall
Great Basin representative
Defenders of Wildlife
1244 19th St. N.W.
Washington, D.C. 20036
(Wyoming address, Box 507, Rock Springs,
Wyo. 82901)

H See response to comment No. 2E for a discussion of the success of establishing sagebrush on mined lands. See repsonse to comment No. 2H for a discussion of the time considered necessary to carry out reclamation on Red Rim. The uncertainties of and risks to the accomplishment of reclamation are described in response to comment No. 2B and in appendix F.

I Your statement is not correct. Red Rim was designated as critical winter range because it affords the combination of forage and shelter necessary to support pronghorn during the winter. Merely displacing pronghorn onto other areas would not automatically render those other areas critical winter range(s).

December 21, 1983

Casper Field Office
Office of Surface Mining Reclamation
and Enforcement
U.S. Dept. of the Interior
P.O. Box 1420
Mills, Wyoming 82644

Dear Sirs:
This is concerning the fate of the pronghorn antelope herd which was blocked from it's traditional winter range in your state by the rancher's fence. I hope to God you have had this fence removed this is about the crewelest thing I have ever heard of, I do hope you had something done with this despicable person to deprive so many beautiful animals for the greed of one man.

Also I understand the needs of these animals can only be assured by the permanent declaration of this portion of the Red Coal tract as unsuitable for coal strip mining. A petition was filed over a year ago to have the area declared off limits to coal mining under the Surface Mining Control and Reclamation Act. We are here to say this petition should be granted. Immediately as how can we ever replace these beautiful animals?

Thank you for your concern I trust to God something will be done about these matters before it is too late.

Most sincerely yours,

Jay Doyle

Joy Doyle

Thank you for your comment.

December 21, 1983

Wyoming Dept. of Environmental Quality
401 West 19th Street
Cheyenne, Wyoming 82002

Dear Sirs:

This is concerning the fate of the pronghorn antelope herd which was blocked from its traditional winter range in your state by a rancher's fence. I hope to God you have had this fence removed, this is about the crewelest thing I have ever heard of, I do hope you have had something done with this dispicable person to deprive so many beautiful animals for the greed of one man.

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Thank you for your concern I do hope something will be done about these matters before it is too late.

Yost sincerely yours,

Joy Doyle

Joy Doyle

J. Doyle
10960 Parkridge
Chicago Ridge IL 60415

69

Thank you for your comment.

Box 438
Hanna, WY 82327
Feb. 4, 1985

John Crowe, Wyoming EQC
Room 304 Emerson Bldg.
2001 Capitol Ave.
Cheyenne, WY 82002

RE: Red Rim

Dear Mr. Crowe:

After reading testimony of the Rawlins' "City Fathers" advocating coal mining in the Red Rim area, one cannot help but believe that avarice and greed have overcome their objectivity. We watched the same people block the building of "the largest enclosed mall between Denver and Salt Lake" about 10 years ago in Rawlins. The local merchants didn't want competition.

As a Rawlins native, my earliest memories are of a family antelope hunt in the Rawlins area. For years hunters and tourists have come to Wyoming because of its unique wildlife and the habitat. Even the remotest chance that some of this uniqueness will be destroyed is enough to preclude any possible mining.

70

With the Hanna mines in dire straits and the China Butte area questionable, surely Carbon County doesn't need yet another coal mine. I am employed as a librarian in the Hanna elementary school and have seen the enrollment drop 40% in the last five years. Since economics seems to be a big issue in this matter, let's try to revitalize the mines we have and rely on the proven tourist industry.

To paraphrase a cliché, "Coal mines in Carbon County come and go, but the antelope go on forever."

Thank you for your comment.

Sincerely,

Carolyn Duncan

Carolyn Duncan

Friday, February 1, 1985—THE DAILY TIMES—Page 3

# Future of China Butte coal lease uncertain

## Firm holding lease on 5,975-acre Carbon County coal tract files for protection under Chapter 11

The holder of a 5,975-acre federal coal lease in southwestern Carbon County, recently filed for Chapter 11 bankruptcy after going into arrears on the second of five bonus payments on that lease.

In March, 1984, China Butte Coal Company defaulted on a $358,000 payment to the U.S. Department of the Interior on a bonus bid after that company obtained the lease in October, 1981. According to the Wyoming Geological Survey (WGS), the company requested that the U.S. Department of the Interior defer the three final bonus payments.

"We split the payments into five payments...and they went into arrears on the second payment," said Mike Karbs, the interim Rawlins District Manager of the Bureau of Land Management (BLM).

Before the company had filed the Chapter 11 bankruptcy, the U.S. Department of the Interior was moving to terminate the lease for default on the second bonus payment. But in filing a Chapter 11, China Butte Coal Company was granted protection, and can prevent the Department of the Interior from canceling the lease or demanding immediate payment of the bonus and rental payments, the WGS said.

"The lease could refer back to the federal government, and if we choose, the lease can go up for sale again," Karbs said. "But right now, it's protected...so it's still in their possession."

According to the WGS, China Butte Coal Company lists the lease as its principal asset. The company owes $1 million in bonus and rental payments to the BLM, and owes another $4 million to the First National Bank of Chicago.

The China Butte coal tract is located about 25 miles southwest of Rawlins, and has an estimated 62.7 million tons of recoverable coal. The total cost of the lease was $1.7 million, plus $3 per acre per year.

Steve and Teri Frazier
250 Earl Road
Moses Lake, WA 98837

Mr. Allen D. Klein
Western Technical Center
OSM
1020-15th St.
Denver, Colorado
80202

Mr. Klein,

A I Am not happy with the copy of the Draft/EIS Statement prepared by OSM. Appendix A's printing of Nuc unsuitability petition is terribly done with entire pages omitted. This I find disturbing.

Barring this omission I still strongly support the preponderance of evidence to select Alternative A for the Red Rim Area. This area is vital and necessary winter habitat for the Biggs herd of pronghorn antelope. Please keep me informed of any relevent descisions as they are made
Thank You

Steve and Teri Frazier
250 Earl Road
Moses Lake, WA 98837

A No pages of the petition were omitted from the printed draft PED/EIS (appendix A). In order (1) to reduce printing costs, by printing two pages of affadavits to the petition to a single PED/EIS page, and (2) to avoid confusion, by placing the first page of each affadavit on the left side of the PED/EIS page, read broad measure, certain half pages of appendix A were deliberately printed blank.

FRIENDS OF THE COLUMBIA
250 Earl Road
Moses Lake, WA 98837

January 1, 1985

Mr. Allen Klein
Administrator, Western Technical Center
OSM 1020 15th Street
Denver, Colorado 80202

RE: Written comments on Red Rim suitability for surface coal mining

Dear Mr. Klein;

I am unable to appear at the hearing on this matter scheduled for January 23, 1985. I am also unable to provide more than an interested opinion in this matter, mainly because of the distance between Rawlins and my home town. I am able to provide; however, an opinion unclouded by the legal constraints which have tainted the conversations between Mr. Ackerman of the WDEQ and the concerned legal counsels of the National Wildlife Federation.

A In the matter of the WDEQs decision to declare item number 2 of the NWFs original petition as "frivolous" , we support the NWF contention of DEQ regulations calling for reclamation of lands that are restored "to a condition equal to or greater than the 'highest previous use'. We strongly support their contentions listed throughout their letter to Mr. Ackerman dated July 6, 1982 and signed by Howard Geduldig. We strongly oppose the attitude displayed in Mr. Ackerman's letter dated June 2, 1982 and addressed to Mr. Robert Golten of the NWF. We believe the use of the word "frivolous" in describing the NWF intentions in this matter to be a violation of the public trust which the Department of Environmental Quality of the State of Wyoming is supposed to be protecting. His condescending and irreverent tone is present in the letter mentioned above as well as in his letter to Mr. Golten of July 26, 1982. As a concerned resource conservationist I and my organization strongly protest to this style of rhetoric.

B In regards to the Draft Document (DEIS)/Petition Evaluation I am thoroughly disgusted with all governmental agencies in this matter. The document is totally lacking in fairness for the original petitioners. The NWF represents many peoples interests in this concern,,including mine and many of our members. The ommission of large parts of the original petition from appendix A in the DEIS is disgraceful. How can people from other parts of the country express their interests and concerns about this important issue if they cannot even depend on their government to produce information in a complete form so that a complete and informed opinion may be expressed in this case. I have reviewed the document at length and find no cause to stop supporting the NWF petition. Review of this document leaves little doubt that this area is prime winter habitat for the pronghorn in the immediate area.

It is too bad we cannot make these animals understand our state and county boundaries and learn to live within the rules we have set up for human society. The coal or potential coal deposits under this land are of little consequence if we place their value on a level higher than that of our natural environment.

A The word "frivolous" was taken directly from Section 3a.(4) of Wyoming DEQ's rules and regulations, which states that "The administrator may reject petitions for designations or terminations of designations which are frivolous." Section 3a.(6) states that "If the administrator determines that the petition is incomplete or frivolous, he shall return the petition to the petitioner, with a written statement of the reasons for the determination and the categories of information needed to make the petition complete."

B See response to comment No. 30A.

I am but one voice and our group is spread out all across Washington State. We have many, many problems and threats upon our natural environment and heritage. We believe in our country and all that it stands for but believe as well that the time has come to reevaluate some, if not all, of our views about our natural heritage. You could easily toss this petition aside and label it "frivolous" and lay waste to this fragile, important area. The [illegible] and people like us will continue in our pursuit to make our society understand the consequences of actions such as the destruction of the Red Rim area. Sure, there are obvious problems and benefits from this issue but the mining of the area has far reaching, subtle ramifications that are like tremors before a major quake. Legislated mandates can be passed, courts can issue rulings, and congressmen can use their influence to protect our natural heritage but only we as divergent groups of individuals can really make a difference in the kind of world that we leave our heirs.

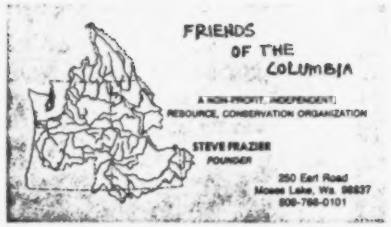
I respectfully submit my support of the National Wildlife Federations Petition for designation as unsuitable for surface coal mining operations in the matter of "Red Rim" as well as their subsequent amendments to said petition as listed in the Draft Petition Evaluation Document/ Environmental Impact Statement for Red Rim, Wyoming. I further respectfully request that deciding bodies in this matter approve of this petition immediately and declare that the Red Rim Area in question is listed as an area which cannot economically or technically be reclaimed. I further respectfully request that the deciding bodies exercise their discretionary judgement and rule in favor of the American peoples right of a protected natrual heritage and select Alternative number A as listed on page 1-13 of the draft document notated above.

The fullest considerations of these comments on behalf of myself and the FRIENDS OF THE COLUMBIA will be greatly appreciated.

Sincerely,

Stephen R. Frazier

Stephen R. Frazier
Director-FRIENDS OF THE COLUMBIA



[illegible]
250 Earl Road
Moores Lake, [illegible] 98 37

January 4, 1983

Mr. Rick Lawton
Wyoming [illegible], Herschler Building, 3rd Floor
122 West 25th Street
Cheyenne, [illegible] 82002

RE: Written comments on Red R m suitability for surface coal minin,

Dear Mr. Lawton;

I am unable to appear at the Hearing on this matter scheduled for January 27, 1983. I am also unable to provide more than an interested opinion in this matter, mainly because of the imbalance between Rawlins and my home town. I am able to provide; however, an opinion unclouded by the legal constraints which have tainted the conversations between Mr. Ackerman of the WDEQ and the concerned legal counsels of the National Wildlife Federation.

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75

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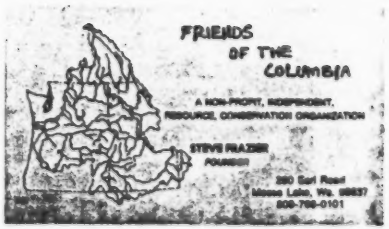
The fullest considerations of these comments on behalf of myself and the FRIENDS OF THE COLUMBIA will be greatly appreciated.

Sincerely,

Stephen R. Frazier

Stephen R. Frazier
Director-FRIENDS OF THE COLUMBIA



FRIENDS OF THE COLUMBIA
250 Earl Road
Moses Lake, WA 98837

January 1, 1985

Mr. John Crowe
Wyoming DEQ
Emerson Building, Room 301
2001 Capitol Avenue
Cheyenne, Wyoming 82002

RE: Written comments on Red Rim suitability for surface coal mining

Dear Mr. Crowe:

I am unable to appear at the hearing on this matter scheduled for January 23, 1985. I am also unable to provide more than an interested opinion in this matter, mainly because of the distance between Rawlins and my home town. I am able to provide; however, an opinion unclouded by the legal constraints which have tainted the conversations between Mr. Ackerman of the WDEQ and the concerned legal counsels of the National Wildlife Federation.

A In the matter of the WDEQs decision to declare item number 2 of the NWFs original petition as "frivolous" , we support the NWF contention of DEQ regulations calling for reclamation of lands that are restored "to a condition equal to or greater than the 'highest previous use'. We strongly support their contentions listed throughout their letter to Mr. Ackerman dated July 6, 1982 and signed by Howard Geduldig. We strongly oppose the attitude displayed in Mr. Ackerman's letter dated June 2, 1982 and addresssed to Mr. Robert Colten of the NWF. We believe the use of the word "frivolous" in describing the NWF intentions in this matter to be a violation of the public trust which the Department of Environmental Quality of the State of Wyoming is supposed to be protecting. His condescending and irreverent tone is present in the letter mentioned above as well as in his letter to Mr. Colten of July 26, 1982. As a concerned resource conservationist I and my organization strongly protest to this style of rhetoric.

A See response to comment No. 31A.

B In regards to the Draft Document (DEIS)/Petition Evaluation I am thoroughly disgusted with all governmental agencies in this matter. The document is totally lacking in fairness for the original petitioners. The NWF represents many peoples interests in this concern,,including mine and many of our members. The ommission of large parts of the original petition from appendix A in the DEIS is disgraceful. How can people from other parts of the country express their interests and concerns about this important issue if they cannot even depend on their government to produce information in a complete form so that a complete and informed opinion may be expressed in this case. I have reviewed the document at length and find no cause to stop supporting the NWF petition. Review of this document leaves little doubt that this area is prime winter habitat for the pronghorn in the immediate area.

B See response to comment No. 30A.

It is too bad we cannot make these animals understand our state and county boundaries and learn to live within the rules we have set up for human society. The coal or potential coal deposits under this land are of little consequence if we place their value on a level higher than that of our natural environment.

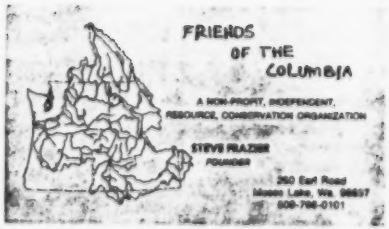
I am but one voice and our group is spread out all across Washington State. We have many, many problems and threats upon our natural environment and heritage. We believe in our country and all that it stands for but believe as well that the time has come to reevaluate some, if not all, of our views about our natural heritage. You could easily toss this petition aside and label it "frivolous" and by waste to some fragile, important area. The WF and people like us will continue in our pursuits to make our society understand the consequences of actions such as the destruction of the Red Rim area. Sure, there are obvious problems and benefits from this issue but the mining of the area has far reaching, subtle ramifications that are like tremors before a major quake. Legislated mandates can be passed, courts can issue rulings, and congressmen can use their influence to protect our natural heritage but only we as divergent groups of individuals can really make a difference in the kind of world that we leave our heirs.

I respectfully submit my support of the National Wildlife Federations Petition for designation as unsuitable for surface coal mining operations in the matter of "Red Rim" as well as their subsequent amendments to said petition as listed in the Draft Petition Evaluation Document/ Environment l Impact Statement for Red Rim, Wyoming. I further respectfully request that deciding bodies in this matter approve of this petition immediately and declare that the Red Rim area in question is listed as an area which cannot economically or technically be reclaimed. I further respectfully request that the deciding bodies exercise their discretionary judgement and rule in favor of the American peoples right of a protected natrual heritage and select Alternative number A as listed on page 1-17 of the draft document noted above.

The fullest considerations of these comments on behalf of myself and the FRIENDS OF THE COLUMBIA will be greatly appreciated.

Sincerely,

Stephen R. Frazier
Director-FRIENDS OF THE COLUMBIA



**Ken Funk**
216 E. Maple
Rawlins, Wyoming 82301

Feb 4, 1985

Mr. John Crow:
Hearing Officer:

John,

I wish to comment on turning the antalopes winter range into a damn coal mine. I have lived in Rawlins for 38 years. I'm a native. I have seen various big business rape our state to fill their pockets with money, money and more money that's all anyone seems to care about. The hell with the State, the hell with the animals, or the beauty of the state anything for money. The oil fields south of Hamsatter have scared much of that land. The oil and uranium mines have ruined the Red dessert. Roads have ruined Green Mountain for exploration, the same with Shirley Mountain. Black Butts coal have ruined much of the Bitter Creek Indian Ruines. Snowy Range with all the roads and timber sales have disturbed the wildlife. The Bolten Hunting Club

Thank you for your comment.

**Ken Funk**
216 E. Maple
Rawlins, Wyoming 82301

have killed off most of their animals herds, along with the Safari land have killed off alot of the animals. All thes land all these animals for nothing but the almighty "dollar". Where is it all going to end? When nothing is left and the animals have no place left to go - to servive. Where there were 100 antelope south of Rawlins there are now 10 with the hard winters and the land being raped. Some one has to protect the states animals and beauty. Or we won't have anything left, only "dollars" for Taylor Lawerence and people like him. You probulally think I am some what of an enviormentalist but I have hunted and fished in this state ever since I was old enough to. The Game and Fish Dept. do a reasonably good job controling the number of animals but take away the animals winter range and soon you will not have any game to worry about.

Nature is our responsability to protect once our state is ruined what will be left? Wyo. is one of the last frontier left. Lets not let the "dollar" ruin all we have left.

Thank you! Ken E. Funk.

John Crow
Environmental quality Council
122 West 25th Street
Herschler Building
Cheyenne, Wy. 82002

81

I am opposed to having the Red Rim area fenced off and/or used for mining purposes.

Scott Sivon
Box 2001
Rawlins, Wy.
82301

Thank you for your comment.

Feb. 17 1984

Casper Field Office,
Office of Surface Mining Reclamation,
and Enforcement
U.S. Dept of Interior

To Whom it may Concern:

Sirs:

I would like to express my support for the National Wildlife Federation, and the Wyoming Wildlife Federations Petition, To have the Critical Antelope Habitat on the Red Rim + East, declared unsuitable for mining

Sincerely

Mrs Isobel Reschke Gonzales
317 Lee St.
Rawlins, Wyo. 82301

Thank you for your comment.

John Crow
Environmental Quality Council
122 W. 25th ST.
Herschler Bldg.
Cheyenne, Wyo
8002

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83

I would like to see the Red Rim area stay as is. we don't need to set up a coal mine - to - have to shut down in the futur, as our other coal mines. I feel that our wild life needs more attention at this moment. once our wild life is gone, it is hard to bring it back, But once the coal is mined out and you have made yours money, you don't and won't think Twice about layin off your Employees and closeing the Gates. and won't ever care if it opens again Laurence O. Gonzales.

Thank you for your comment.

Jan. 2-84

SIR-

A FEW WEEKS AGO I WAS WATCHING TELEVISION AND WAS ABLE TO WITNESS ONE OF THE CRUELIST SIGHTS I'VE EVER SEEN. THE SCREEN SHOWED A HERD OF ANTELOPE MILLING UP AND DOWN A FENCE THAT STRETCHED FOR MILES, TRYING TO GET THROUGH TO THEIR FEEDING GROUNDS. I WAS SO DISTURBED BY THIS SCENE, THAT I STARTED MAKING INQUIRYS THROUGH GOVERNMENT AGENCYS AND HUMANE SOCIETYS. NEARLY ALL ANSWERED MY TELEGRAMS AND PHONE CALLS AND AS THE INFORMATION CAME IN, I BEGAN TO GET A MORE CLEAR PICTURE OF WHAT WAS INVOLVED. IT SEEMS THESE ANTELOPE ARE ABOUT TO BE THE VICTIM OF A LANDOWNERS GREED FOR MORE MONEY AND A BIG COMPANYS GREED FOR MORE COAL AND MORE MONEY AND IT ALL BOILS DOWN TO WETHER YOUR AGENCY IS GOING TO LET THEM DO IT. I DON'T KNOW WHAT YOUR DECISION WILL BE, BUT I KEEP HOPING THAT WE WILL ACT LIKE GOOD.

84

Thank you for your comment.

SOLID, MATURE MEN THAT WE ARE
SUPPOSE TO BE AND MAKE A JUST AND
RIGHT DECISION. NEVER MIND THE
PROFIT PICTURE FOR A CHANGE. MAY I
WISH ALL OF YOU THE VERY BEST FOR
THE NEW YEAR, 1984

CLINT GOODWIN
501 BERMUDA
BAKERSFIELD, CAL.
93304

6665 Vreeland Rd.
Ypsilanti, MI 48197
7 December 1983

William Thomas
Office of Surface Mining
Casper Field Office
P.O. Box 1420
Mills, Wyo. 82644

Dear Mr. Thomas:

The NBC Evening News for December 6 carried a report of the potential starvation of a herd of 2,000 Wyoming antelope this winter. It's always sad to hear of the hardships visited by winter upon wildlife and livestock, but this particular instance is man-made and deliberate, and therefore not just sad but infuriating. As I understand it, the land on which these antelope traditionally feed during the winter (the Red Rim Tract) is under review as a possible site for surface mining of coal. Its suitability for this use has been questioned because of its importance to the antelope and, according to law, if the antelope must graze there or die, the land will be declared unsuitable for strip mining and there will be no coal lease sale. But the surface-land owner seems to believe that if the Office of Surface Mining sees no antelope on the land, they will be fooled into thinking that no antelope need the land and so declare the land suitable for mining. He has therefore erected a 37-mile long fence to keep the antelope off the land. This strikes me as an astonishingly cynical attempt on the part of the landowner to circumvent the OSM review process and present the government with a fait accompli.

886

According to the NBC report and film, antelope are already dying because of this fence. They are running along its length until they drop of exhaustion; they are colliding with cars, trucks and trains in an effort to go somewhere else. I do not know how long the review process normally takes, but in this case, overwhelming evidence of the antelopes' need of this land, and its consequent unsuitability for surface mining, would seem already to have been presented.

But beyond that, we have learned by now that wildlife management and energy policy are not properly the decisions of any one individual - such policy must be set by people at the state and federal level who have no personal interest in the decision and who are able to see the broader picture. Whatever the decision of the OSM ultimately is, it must not be manipulated by actions such as this. Please take whatever steps are necessary to get that fence down now. The potential of the land as a source of coal will not be hurt by the antelopes' continued use of it. But unless that fence comes down at once, an ultimate decision of unsuitability will mean nothing, as the antelope will already have died.

Sincerely yours,

Nancy Terry Greacen

Thank you for your comment.

6665 Vreeland Rd.
Ypsilanti, MI 48197
7 December 1983

Department of Environmental Q
401 West 19th Street
Cheyenne, Wyoming 82001

Gentlemen:

The NBC Evening News for December 6 carried a report of the potential starvation of a herd of 2,000 Wyoming antelope this winter. It's always sad to hear of the hardships visited by winter upon wildlife and livestock, but this particular instance is man-made and deliberate, and therefore not just sad but infuriating. As I understand it, the land on which these antelope traditionally feed during the winter (the Red Rim Tract) is under review as a possible site for surface mining of coal. Its suitability for this use has been questioned because of its importance to the antelope and, according to law, if the antelope must graze there or die, the land will be declared unsuitable for strip mining and there will be no coal lease sale. But the surface-land owner seems to believe that if the Office of Surface Mining sees no antelope on the land, they will be fooled into thinking that no antelope need the land and so declare the land suitable for mining. He has therefore erected a 37-mile long fence to keep the antelope off the land. This strikes me as an astonishingly cynical attempt on the part of the landowner to circumvent the OSM review process and present the government with a fait accompli.

87

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Sincerely yours,

Nancy Terry Greacen

Thank you for your comment.

3005 43rd street
Metairie, Louisiana 70001
February 2, 1984

Casper Field Office
Office of Surface Mining Reclamation
and Enforcement
U.S. Dept. of the Interior
P.O. Box 1420
Mills, Wyoming 82644

Gentlemen:

Please take into consideration of the welfare of the Bagge pronghorn antelope herd.

Strip mining of the Red Rim Tract would be very detrimental to the entire herd and should not come to pass.

Strip mining this land would deprive these animals of their rightful food.

A I am sure you must realize that with your severe winters food for these animals would be a total loss for years to come, and the entire herd would die of starvation.

As a humane person, I am sure you wouldn't want to be a party to such a cruel thing.

Yours truly,
(Mrs.) Jeanette V. Guth

A See response to comment No. 10A.

SINCLAIR, WY
JAN 25
1985
PM
82334

OFFICE OF Surface mining
P.O. Box 1420
Mills, WY

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I do not beleave
it is nessary To
mine coal in The
Red Rim aera

John w Hay
Ft Steel Wyo

Thank you for your comment.

43

SINCLAIR, WY
JAN 25
1985
PM
82334

JOHN CROW
ENVIRONMENTAL QUALITY COUNCIL
122 W. 25TH STREET
HERSCHLER BLDG.
CHEYENNE, WY 80002

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1-25-85

I WISH TO EXPRESS MY OPPOSITION TO THE SURFACE MINING OF COAL IN THE RED RIM AREA SOUTH WEST OF RAWLINS. THIS AREA IS AN ENVIRONMENTALLY SENSITIVE AREA WHICH PROVIDES UNIQUE WINTER RANGE.

MY EXPERIENCE IN LAND RECLAIMATION TELLS ME THAT THE UNIQUE NATURE OF THE RIM WITH A BLEND OF BROKEN HABITAT AND DIVERSE VEGITATION COULD NOT BE REESTABLISHED.

WITH ALL THE EXISTING COAL OPERATIONS IN CARBON COUNTY AT SUCH LOW OUTPUT IT APPEARS THAT GREED RATHER THAN COAL IS THE ONLY MOTIVE INVOLVED AND PERSONAL GREED IS A POOR JUSTIFICATION.

T. I. NUSHBECK
613 SAGE HILLS
RAWLINS, WY 82301

ROCK 1-28-85

Thank you for your comment.

DEPARTMENT OF ZOOLOGY AND PHYSIOLOGY

TELEPHONE (307) 766-4207

THE UNIVERSITY OF WYOMING
UNIVERSITY STATION, BOX 3166
LARAMIE, WYOMING 82071

March 28, 1984

Mr. Allen D. Klein
Office of Surface Mining
Western Technical Center
Brooks Towers
1020 15th St.
Denver, CO 80202

Dear Mr. Klein:

This letter is a response to the Red Rim Environmental Statement; I wish to have this presented at the public hearing in Rawlins on 9 April. It will be given by my representative, Thomas J. Ryder. I supervised the pronghorn antelope study at Red Rim, and I have recently conducted a separate study to compare 29 antelope winter ranges in Montana, Idaho, Wyoming, and Colorado. Thus, I feel I am well prepared to speak to the issues.

A First, I'll discuss Alternative "C1b: Designate as unsuitable for all surface coal mining operations Irwin and others (1983) Separation Creek and Red Rim study areas." This seems to represent a compromise halfway between no mining and mining all of Red Rim, which is based upon antelope distributions. The 2 areas suggested as unsuitable under this alternative definitely contain the highest average densities and the best foraging conditions. The elevated portions on Red Rim do not seem to attract many antelope until the Separation Creek area fills up with about 700 antelope and weather deteriorates, then several hundred would be expected in the higher zones. Based upon this empirical evidence and contemporary ecological theory, as well as intuitive biology, I predict the northern 2 habitat zones will become relatively important in severe winters which appear to bring even more antelope to Red Rim. This is why we stated in our report (Irwin et al. 1983) that the entire Red Rim area is a preferred habitat, and is critical for survival. Thus, the proportion of antelope in the northern part might be as high as 30-40% of the antelope on Red Rim.

Thus, although Alternative C1b represents, in my opinion, a reasonable compromise, it does not preclude the potential for significant disturbance to about 400 antelope in a "normal" winter, and substantially more antelope under severe conditions.

B Secondly, I supervised an evaluation of 29 antelope winter ranges in 4 states. We selected areas ranging from low to very high antelope densities. Vegetation parameters and topographical indices were correlated with the variation in densities. The south part of Red Rim (i.e., Separation Creek and Red Rim study areas) rated the best antelope habitat we examined (please see attached map and table). The northern part of Red Rim was intermediate in quality, using that procedure. Thus, the Red Rim complex rates very well, if not the very best,

A Thank you for the information. Sections IVB and VC have been revised.

B The table and figure attached to your letter have been incorporated into section IIA.

in comparison to other winter ranges over a wide geographic region. Also, these data provide strong support for the observation that the northern part is lesser quality habitat than elsewhere on Red Rim. It may also be useful to point out that the northern areas on Red Rim are shown by LANDSAT imagery to be drier, which is also reflected in vegetation density measurements. Probably, some of these soils would have to be irrigated for optimal reclamation.

C Finally, a comment on page IV-21 which lists my affadavit concerning Red Rim. There is a mistake in that section: ...." if the Red Rim area were to be mined, scientific data on pronghorn responses would be collected." I am aware of no current commitment regarding such data collection. However, I personally believe that such data should be collected, using at least some of the techniques used in our studies.

C Section IVB has been revised.

Sincerely,

Larry L. Irwin
Assistant Professor

LLI:mld

Table 1. Pronghorn winter densities, shrub cover, and topographic diversity in 28 wintering areas in Colorado, Idaho, Montana and Wyoming.

| Wintering Area | Pronghorn per mi$^2$ | Average % shrub cover | Topographic[a] index |
|---|---|---|---|
| Red Rim (South), WY | 53 | 17.3 | 0.98 |
| Muddy Creek (South), WY | 51 | 20.2 | 0.84 |
| Medicine Bow (West), WY | 50 | 20.3 | 0.87 |
| Medicine Bow (East), WY | 31 | 11.2 | 0.67 |
| Howe, ID | 25 | 17.3 | 0.49 |
| Little Lost R., ID | 23 | 18.6 | 0.55 |
| Four-Mile Creek, CO | 21 | 21.1 | 0.62 |
| Red Rim (North), WY | 20 | 11.3 | 0.73 |
| Albert Creek, WY | 18 | 15.4 | 0.79 |
| Mazett Flats, WY | 18 | 11.1 | 0.84 |
| Big Gulch, CO | 14 | 18.8 | 0.76 |
| Yellow Water Triangle, MT (3 areas) | 14 | 9.0 | 0.80 |
| Sandwash Basin, CO | 13 | 13.9 | 0.84 |
| Urie's Pasture, CO | 12 | 24.6 | 0.67 |
| Muddy Creek (North) | 12 | 18.5 | 0.76 |
| Worland (Area 3), WY | 12 | 16.5 | 0.81 |
| Birch Creek, ID | 11 | 17.3 | 0.48 |
| Worland (Area 1), WY | 11 | 8.6 | 0.81 |
| Koehler Draw, WY | 10 | 11.0 | 0.74 |
| Logan Gulch, WY | 10 | 9.0 | 0.69 |
| Porter Creek, CO | 5 | 2.3 | 0.60 |
| Worland (Area 2), WY | 4 | 1.8 | 0.62 |
| Pawnee Grasslands, CO (4 areas) | 1 | 0.5 | 0.55 |

[a] Higher values indicate more optimum topographic diversity. Minimum and maximum values of this index are 0.0 and 1.0, respectively (from Allen and Armbruster 1982).

Figure 1. Location of pronghorn winter range study sites. Medicine Bow, Red Rim, and Muddy Creek were each divided into 2 subranges; thus, total sample size was 29. LSRC stands for Little Snake River Corridor.

DEPARTMENT OF ZOOLOGY AND PHYSIOLOGY

TELEPHONE (307) 766-4807

THE UNIVERSITY OF WYOMING
UNIVERSITY STATION, BOX 3166
LARAMIE, WYOMING 82071

January 29, 1985

John Crowe
Wyoming Environmental Quality Council
Emerson Building, Room 304
2001 Capitol Avenue
Cheyenne, WY 82002

Dear Mr. Crowe:

This letter is aimed to provide insight into the Red Rim unsuitability issue, and I wish it to be entered in the proceedings as documentation associated with antelope studies. I supervised 2 graduate research studies on Red Rim, beginning in 1979 and ending in a final report in January, 1984. In addition, I supervised a third study which compared 29 antelope winter ranges in Wyoming (including Red Rim), Idaho, Montana, and Colorado. I believe I am well qualified to discuss certain issues associated with antelope.

34

I wish to discuss the Red Rim Environmental Statement's, Alternative C1b or "Designate as unsuitable for all surface coal mining operations Irwin and others (1983) Separation Creek and Red Rim study areas." This appears a compromise based upon antelope distributions we observed during winter on Red Rim. The 2 areas suggested as unsuitable (south half of Red Rim) under this alternative definitely support the highest antelope densities (approx. 50/mi$^2$) and the best foraging conditions. This occurs because of irregular topography, northwest slopes (blown free of snow), taller sagebrush, and better growing conditions. The Separation Creek area with its draws, ridges, and convoluted topography, fills up with migrant antelope first, and then ridges and benches along the crest of Red Rim attract additional antelope as they arrive from surrounding areas.

A

In fact, in 3 winters we studied and in 2 examined previous to our work by BLM and Game and Fish biologists, an average of 75% of the antelope wintering on Red Rim made heavy use of the 2 southern areas, which comprise 56% of the land area on Red Rim. Thus, I believe the compromise is reasonable, at least for average winters.

However, based upon our data, contemporary ecological theory, and empirical data gathered by other researchers, I predict the northern 2 habitat zones will become more important in severe winters than in normal winters because more antelope migrate to Red Rim. This is why we stated in our report (Irwin et al. 1983) that the entire Red Rim area is a preferred habitat and is critical for survival. Thus, the proportion of antelope in the northern parts might be as high as 30 or 40% of the herd on Red Rim. In some winters the number could be as high as 800 or more antelope.

A Thank you for the information. Sections IVB and VC have been revised.

Our data also indicate the preferred areas on Red Rim include northwest-facing slopes ranging from 25-55°, and big sagebrush stands averaging 5 plants per $10m^2$ and 25 cm tall. Taller sage is used in draws and flats, apparently as cover from wind, in addition to food. The preferred areas within the "Separation Creek and Red Rim" sub-units with the highest winter-long antelope densitites include Separation Creek and draws running northward from near the middle of Red Rim, notably Sections 23, 26, 27 and 35 of T20N, R90W. If these preferred areas are mined, the combined sagebrush densities and steep slopes which provide unique habitats will be highly difficult to replace elsewhere or restore, according to scientific literature I have reviewed.

B In the third study comparing habitat conditions among 29 antelope winter ranges, I selected areas containing sparse to dense populations. Several vegetation parameters, primarily sagebrush cover and an index to topographic diversity, were highly correlated with the variation in antelope densities. The south part of Red Rim (i.e., Separation Creek and Red Rim study areas) thus rated among the best antelope habitat we examined (please see attached table). The northern half of Red Rim was intermediate in quality. These studies provide strong support for the premise that the northern part of Red Rim, while of lesser quality than the southern half, still has value. Thus, if Alternative C1b is accepted, it represents a real and significant compromise because it would not, in my opinion, preclude potential loss of 25-40% of the antelope on Red Rim following a severe winter.

C Finally, it should be noted that my associates and I compared quality of winter ranges adjacent to Red Rim. Those in the immediate vicinity to the northwest and northeast are not large enough to accept much of the "overflow" if antelope are displaced from Red Rim. These areas also become unsuitable in harsh winters. There are excellent winter ranges further to the south, in the Muddy Creek area, but migration routes from Red Rim may be blocked by deep snow in some winters.

In conclusion, I support an alternative to restrict mining, if it should occur, to the portions of Red Rim which contain the poorest quality habitat, i.e., the drier, less-productive zones in the northern area which have low topographic diversity. It is my opinion that, although some impacts would probably occur, this would have the least impact to the Red Rim antelope.

Sincerely,

Larry L. Irwin
Assistant Professor of Wildlife

Enclosure: Table

cc: R. Lawton, R. Corsi, D. Strickland

B The table attached to your letter has been incorporated into section IIA.

C Thank you for the information. Section IIA has been revised.

95

Table 1. Pronghorn winter densities, shrub cover, and topographic diversity in 28 wintering areas in Colorado, Idaho, Montana, and Wyoming.

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[a]Higher values indicate more optimum topographic diversity. Minimum and maximum values of this index are 0.0 and 1.0 respectively (from Allen and Armbruster 1982).

PO Box 250
Hanna, Wy. 82327
Feb. 5, 1985

John Crow
Wy. Env. Quality Council
122 W. 25th St.
Cheyenne, Wy. 82002

Dear Mr. Crow;

Although I am not an expert in any given area relative to mining in the Red Rim area, I feel as a concerned citizen that I must comment on the issue.

It seems that experts on wildlife believe that the proposed mining in this area would have an adverse effect on antelope habitats. For this reason, it would seem prudent to at the very least, defer opening this area, especially when supported by the rationale that there are already in the county, several operating facilities extracting coal with no immediate end in sight to the reserves availabe to them.

I believe the winter kill of antelope last year was far more devastating than the numbers published would seem to indicate. The evidence to us is obvious---we simply do not see antelope as we did 2-3 years ago. Please help preserve what few remain.

Thank you.

Sincerely,

Rose Lee Johnson

Thank you for your comment.

87

John Crow
Environmental quality Council
122 W 25th St
Herschler Bldg
Cheyenne Wy
82002

© USPS 198

96

Why another Coalmine ? out at Red Rim others in Production are running more than we use at Present. Let the Antelope Play out there until you Really need to get at the Coal

Yvonne Halmson
1215 Ritter St
Rawlins Wy 82301

Thank you for your comment.

11 January 1984

Casper Field Office
Office of Surface Mining Reclamation and Enforcement
U.S. Department of the Interior
P.O. Box 1420
Mills, Wyoming 82664

Subj: Red Rim coal tract

Dear Sir/Madam:

We found it hard to believe that it is legal to build on private land a fence that blocks wildlife from their feeding areas on federal land. The law--whether state or federal--should be amended to prevent another action such as the blocking of the Baggs pronghorn herd from its Red Rim winter range.

Right now, however, we are writing to support the petetion filed by the Wyoming Wildlife Federation and the National Wildlife Federation to declare the antelope-range portion of the Red Rim coal tract unsuitable for strip mining. We don't see how anyone could doubt the direct need of that aread by the antelopes, and given the enormous acreage of federal land leased already for coal mining, the Red Rim tract doesn't seem critical to coal production.

66

We've been to Wyoming, and we enjoyed watching the pronghorns out in the sagebrush. We also noticed that by Appalachain standards there's not much rain or vegetation in a lot of Wyoming. The strip miners' claims that they can restore pronghorn (or any other) range quickly, serves only as evidence that the tall tale is still alive in the West. It is our understanding that experimental restoration plots on display by coal companies have not depended solely on rainfall, but have have been artificially watered to get them started. We don't believe that any company is going to have the resources--in money, determination, or water--to turn stripped land back into normal range land before hundreds, maybe all, of the Baggs herd have died.

Thank you for your comment.

As part-owners of the federally owned 15,000 acres of Red Rim designated by BLM and the Wyoming Game and Fish Department as critical antelope habitat, we think strip mining is absolutely the wrong use for that land.

Sincerely,

Jean B. Kolb

Jean B. Kolb

Harold H. Kolb Jr.

Harold H. Kolb Jr.
Rt. 1, Box 319
Covesville, VA 22931

Rt. 1, Box 319
Covesville, VA 22931
3 February 1985

Mr. Rich Lawton
Wyoming Department of Environmental Quality
Herschler Building, 3rd Floor
122 West 25th Street
Cheyenne, Wyoming 82002

Subj: Red Rim antelope range

Dear Mr. Lawton:

We think it was bad judgment on the part of James Watt to lift the prohibition of barriers to wildlife migration by coal field developers. Only four-letter words can convey the intensity of our feelings about that change, and we strongly support the efforts of the National Wildlife Federation to have the Red Rim area designated unsuitable for strip mining.

Mr. Watt's coal-leasing policies put so much potential coal land up for development that the loss of Red Rim's coal would hardly put a dent in the U.S. supply. But the loss of Red Rim to antelope would be a catastrophe--which almost occurred last winter. The antelope have fewer choices than the coal industry.

Trips through Wyoming have shown us quite vividly that moisture there is not up to Appalachian levels and suggest that post-mining reclamation of Red Rim for antelope range is highly unlikely.

Catching sight of a few antelope even at a distance, was a great experience for us. They are a part of the west that we'd like to see protected.

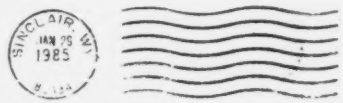
Sincerely,

Jean B. Kolb

Harold H. Kolb

100

Thank you for your comment.




John Crow
Environmental Quality Council
122 W. 25th St.
Herschler Building
Cheyenne, Wy. 82002

101

Dear Mr. Crow;

I am against the Leasing and Mining of the Red Rim Area near Rawlins. This area provides critical winter habitat for Antelope.

Gaylord T. Larson
244 Lupalum Dr.
Rawlins, Wyo 82301
Gaylord T Larson

Thank you for your comment.

PAUL LENTZ
8801 TREASURE STREET
NEW ORLEANS, LA 70118
504/943-7234

December 26, 1983

Casper Field Office
Office of Surface Mining Reclamation
and Enforcement
U. S. Department of the Interior
P. O. Box 1420
Mills, Wyoming 82664

Gentlemen,

I would like to add my support to the efforts of the National Wildlife Federation in having the Red Rim coal tract declared unsuitable for coal strip mining.

I believe the petition by the NWF and the Wyoming Wildlife Federation should be granted because over 15,000 acres of land on Red Rim has already been designated as critical antelope habitat.

Further, that mining would cause severe nutritional deficiencies along with lowered reproductive rates.

That in severe weather, deaths of antelopes would be directly proportional to habitat loss and that habitat restoration should mining occur, is not feasible.

The need for contoured ground surfaces, speedy restoration of the surface and the very high cost of restoration make the entire concept economically questionable.

Thank you for your consideration, and,

Sincerely,

PAUL LENTZ

102

Thank you for your comment.

PAUL LENTZ
3301 TREASURE STREET
NEW ORLEANS, LA 70122
504/943-7334

December 26, 1983

Wyoming Department of
Environmental Quality
401 West 19th Street
Cheyenne, Wyoming 82002

Gentlemen,

I would like to add my support to the efforts of the National Wildlife Federation in having the Red Rim coal tract declared unsuitable for coal strip mining.

I believe the petition by the NWF and the Wyoming Wildlife Federation should be granted because over 15,000 acres of land on Red Rim has been designated as critical antelope habitat.

That mining would cause severe nutritional deficiencies along with low reproductive rates.

In severe weather, deaths of antelopes would be directly proportional to habitat loss. and that habitat restoration, should mining occur, is not feasible.

Further, the need for contoured ground surfaces, speedy restoration and the very high cost of restoration make the entire concept economically questionable.

Thank you for your consideration, and,

Sincerely,

PAUL LENTZ

103

Thank you for your comment.

John Crow
Environmental Quality Council
122 W. 25th St.
Herschler Building
Cheyenne, Wyo.
80002

104

I believe The Red Rim Mine project will be a hazard to wild life and the environment. I support the Game + Fish position on the proposed project.

Louis Meacham
201 E. Buffalo
Rawlins, Wyo.
82301

Thank you for your comment.

January 10, 1984

Casper Field Office
Office of Surface Mining
Reclamation & Enforcement
U.S. Dept of Interior
P.O. Box 1720
Mills, Wyoming 82644

Dear Office:

I am writing to express my support for the National and Wyoming Wildlife Federation petition to have the portion of the Red Rim coal tract declared unsuitable for mining, that is habitat for pronghorn antelope.

This habitat is vital to the herd and its destruction by coal mining would be virtually assured. The costs of reclamation and restoration would be so high as to be impractical, thus permanent ecological damage would result.

Save the Red Rim habitat for the antelope.

Sincerely,

D. A. Pellegrin
7416 North St.
St Louis Park, Mn.
55426

105

Thank you for your comment.

January 6,1984

Dear Sir,

The petition by NWF and the Wyoming Wildlife Federation to declare portions of the Red Rim Tract unsuitable for coal strip mining should be granted for the following reasons:

Mining will result in significant damage to critical winter range for the Baggs pronghorn antelope herd.

- The U.S. Bureau of Land Management and the Wyoming Game and Fish Department have designated 15,200 acres of land on Red Rim as critical antelope habitat.
- Mining would result in displacement and crowding of the animals resulting in nutritional deficiencies and low reproductive rates.
- During severe winters, antelope deaths would be directly proportional to habitat loss (if 35% of the Red Rim habitat is destroyed, 400 - 900 animals would be lost).

Thank you for your comment.

Restoration of the habitat should mining occur, has not been shown to be feasible.

- Effective restoration of the habitat lost through mining would require contouring of the ground surface to recreate drainage and vegetative patterns which are technologically and economically difficult.
- Habitat would have to be restored relatively quickly given Wyoming's severe winters. Even if total restoration were possible, and we believe it isn't, it would take 20-30 years to accomplish during which time the antelope would be displaced.
- The incredibly high cost of restoration (up to $120,000 per acre) brings into question the economic efficiency of mining such fragile lands.

Sincerly,

Helen Milam

January 6,1984

Dear Sir,
The petition by NWF and the Wyoming Wildlife Federation to declare portions of the Red Rim Tract unsuitable for coal strip mining should be granted for the following reasons:

Mining will result in significant damage to critical winter range for the Baggs pronghorn antelope herd.

- The U.S. Bureau of Land Management and the Wyoming Game and Fish Department have designated 15,200 acres of land on Red Rim as critical antelope habitat.
- Mining would result in displacement and crowding of the animals resulting in nutritional deficiencies and low reproductive rates.
- During severe winters, antelope deaths would be directly proportional to habitat loss (if 35% of the Red Rim habitat is destroyed, 400 - 900 animals would be lost).

Thank you for your comment.

107

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- The incredibly high cost of restoration (up to $120,000 per acre) brings into question the economic efficiency of mining such fragile lands.

Sincerly,
Helen Milam

OSWEGO INDUSTRIES, INC
7 Morrill Place
Fulton, N.Y 13069

January 3, 1984

Dear Sirs:

This letter is in reference to the shocking situation that developed in Rawlins, Wyoming, concerning the prevention of the antelope from migrating to their Red Rim winter feeding grounds because a rancher built a fence.

I wish to express to you my concern and whole-hearted support in having the Red Rim tract of land declared unsuitable for mining. If this land is used for coal mining, the natural habitat of the antelope would be destroyed, causing the deaths of many hundreds of the antelope. These animals are part of our natural American heritage and should be preserved for all generations to come.

Thank you for your comment.

Sincerely,

Mrs. Willeta Miracle
P.O. Box B
Bluff City, Tenn. 37618

January 3, 1984

Dear Sirs:

This letter is in reference to the shocking situation that developed in Rawlins, Wyoming, concerning the prevention of the antelope from migrating to their Red Rim winter feeding grounds because a rancher built a fence.

I wish to express to you my concern and whole-hearted support in having the Red Rim tract of land declared unsuitable for mining. If this land is used for coal mining, the natural habitat of the antelope would be destroyed, causing the deaths of many hundreds of the antelope. These animals are part of our natural American heritage and should be preserved for all generations to come.

Sincerely,

Mrs. Willeta Miracle
P.O. Box B
Bluff City, Tenn.
37618

Thank you for your comment.

109

John. Crew
Environmental Quality Council
122 W 25th ST.
Herschler Bldg.
Cheyenne, Wy 80002

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110

I feel the Red Rim area should be left for our antelope winter ground. There is certainly no shortage of coal, we have several coal facilities closed down in our area now.

H B Musgrave
Sinclair Wyo.

Thank you for your comment.

Jan 7. 1984

Dear Sirs.

I watched ~~[illegible]~~ on National TV the other night on the terrible fate of the Pronghorn antelope being fenced out of their winter feeding ground

God didnt give us this land, he loaned it to us to care for and these animals have as much right to it as we do. What right does the rancher named Laurence think he has.?

Therefore I see no reason to take away their winter feeding Grounds. I feel that the land known as Red Rim tract shold be declared unavailable for mining

Sincerely Mrs Edward L Neal
923 Chrysler St
Kalamazoo Mich.
49001

Thank you for your comment.

Gretchen Neuman
2133 Happy Hollow
Rawlins, Wy. 82301

Dear Mr. Crow,

I would like to see the Red Rim protected and declared unsuitable for coal mining. In my opinion the critical winter habitat for antelope outweigh the importance for surface mining.

Wyoming should value its antelope herds instead of slowly destroying them.

Thank you,
Gretchen Neuman

112

Thank you for your comment.

113

U.S. Dept. of Interior
P.O. Box 1828
Mills, Wyoming 82644

Dear Sirs,

My letter concerns the critical winter range of the pronghorn antelope that has been threatened by recent development. I urge you to support the petition by the National Wildlife Federation to have the antelope habitat in the Red Rim tract declared unsuitable for mining. Responsible action is needed to preserve our nation's treasured wildlife.

Sincerely,
Yvonne Neubauer

Thank you for your comment.

YVONNE NEWMAN

12 December 1983

Wyoming Dept. of Environmental Quality
401 West 19 Street
Cheyenne Wyoming 82002

Dear Sirs

I am writing to express my support the National Wildlife Federation's petition to have the critical Antelope habitat on the Red Rim tract declared unsuitable for mining. America's wildlife and natural heritage can only be preserved through careful management and sacrifice. Please show your concern.

Sincerely,
Yvonne Newman

633 MIDVALE AVENUE, 6
LOS ANGELES, CALIFORNIA 90024

114

Thank you for your comment.

John Crowe
Environmental quality Council
122 W. 25th st.
Herschler Building
Cheyene Wy 8002

115

I am against surfmining in the Red Rim area, save the winter habitat for the antelope.

Kevin Nickerson
2427 Inverness
Rawlins Wy 82301

Thank you for your comment.

Feb. 5, 1984

Gentlemen,

I urge you to support the National Wildlife Federation petition to have the Red Pine Tract declared unsuitable for mining.

Please make this request a matter of record.

Sincerely,
Anne Opdyke
204 Bakley Ave.
Phillipsburg N.J.
08865

Thank you for your comment.

Office of Surface mining
Box 1420
Mills, Wy. 82644

117

I'm against having the Red Rim Mined for coal, I rather have the winter range for the antelope.

Frank C. Ochringer
PO Box 1297
Saratoga Wyo 82331

Thank you for your comment.

67

John Crow -
Wyoming Environmental Quality Council
122 W. 25th St. Herschler Bld.
Cheyenne, Wyo. -

Dear Sir.

I'm writing to oppose letting Seminoe being developed for Coal. The area is necessary to keep the antelope alive - that has been proven!!

Why destroy more land when there is coal in other already disturbed areas - and as far as land being restored is a crock - if you've been around Hanna you'd agree

Land for wild game & hunters is going to Hell every year. Ranchers lock the public out of complete mountains & public land -

Then they reduce the rate for ranchers to use public land for grazing -

Boy there is no justice

Clara Paris

Thank you for your comment.

SINCLAIR, WY
JAN 25
1985
82334

John Crow
Environmental quality Council
122 W. 25TH
Herschler Building
Cheyenne WYO. 82002

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119

I Am Not INFavor
OF mining COAL IN THE
Red Rim area Because of
what it will do To The antelope
wintering area

Bob Anderson

Thank you for your comment.

SUBJECT: STRIP-MINING IN RED RIM AREA IN WYOMING. OBJECTION!

3-9-84

Gentlemen; I strongly urge for support, for the Red Rim AREA, to become a protected Wildlife habitat for antelope and related wildlife. There must be a solution to the questions raised in this manner.

Strip-Mining leaves nothing but a bunch of useless dirt. Red Rim can become a park, instead of an over-grown sand-box.

But what you people want for recreation grounds, is really your choice.

All I can do, is try to speak out for the hundreds of living antelope, that will be dead, if you decide to rape Wyoming. Drill Oil in my State (California), I don't mind. But, Coal from RED RIM? NO! Thankyou.

Sincerely, George J. Phillips

A MEMBER OF NATIONAL WILDLIFE FED.

120

Thank you for your comment.

SUBJECT: RED RIM ANTELOPE HABITAT + PROPOSED STRIP MINING.

3-9-84

Gentlemen;

I ~~strongly~~ urge ~~support~~, of the actions of all envire--mental, and Wildlife groups, presently petitioning the State of Wyoming. The Wildlife that would be de--stroyed, in return for money + Coal, is a poor reason to turn your state into a miner's play--ground.

Still take 20 to 30 years to fully restore the land, after the Strip-Mining. If you do decide to Strip-Mine, you could always declare Red-Rim as a State Sand-Box, & instead of a beautiful State Park. Thankyou,

Sincerely,

George Phillips*
4055 42ND ST.
San Diego, Cal.,
92105

*A MEMBER OF THE NATIONAL WILDLIFE F.

121

Thank you for your comment.

John Chan
Environmental Quality Council
122 W 25th St.
Herschler Building
Cheyenne Wy 82002

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122

Save the Antelope. Don't allow coal mining on the Red Rim from the west. If 83-84, it can be only seen how critical this area is to Antelope survival.

Barry McKamey
Rawlins Wy. 82301

Thank you for your comment.

Please Read.

To whom it may concern.

This is to inform you that a groups of us citizens are against mining on the Red Rim tract. It definately is not a suitable location.

Hope all get together to stop it.

yours truly

Carl Reisig
Embassy Hills
Port Richey Fla.

123

We support the petition that National Wildlife Federation presents to the declaired unsuitable for mining.

America is a good and beautiful Country, Why ruin it?

Thank you for your comment.

Please read

To whom it may concern,

We are a concerned group who support the petition against the Red Rim tract declared unsuitable for mining. There are plenty of reasons for not carry such a project out. So please add this to I hope a long list of folks against it.

Mr. & Mrs. Carl Reiseg
101 E Fireside Dr.
Port Richey Fla.

We support the national Wildlife petition for Red Rim mining.

Please mine elsewhere don't destroy wildlife.

America is a good Country
Why ruin it.

Catherine Reiseg
101 E. Fireside Dr.
Port Richey, FL 33568

124

Thank you for your comment.

Feb. 1984

Office of Surface Mining Reclamation & Enforcement,

I would like to express my support to have the Red Rim tract declared unsuitable for coal mining

I urge you to consider the high cost of restoration, and economic efficiency of mining fragile land, as the Red Rim tract.

During severe winters, the Antelope deaths would be rapidly increased due to lose of their natural habitat.

Please give this petition your concern and grant the Antelope his natural home.

Thank You for Your Time,
Cindy Richards
15 West Main St
Pen Argyl. Penna. 18072

125

Thank you for your comment.

75

Dec 24 1983

U.S. Dept. [illegible]
Casper [illegible]
P.O. Box 1420
Mills, Wyoming

Dear Sirs:

Please support the Nat. Wildlife Federation petition which claims Red Rim Tract unsuitable for coal strip mining.

In the first place — coal strip mining does not produce true coal — such as anthracite but only gets us lignite — a very very soft coal which produces more carbon dioxide per British

Thank you for your comment.

Thermal Units — But shucks
you know that!

As you may or may not know
carbon dioxide in the atmosphere
is warming up the world, so that
The melting of the ice caps is
endangering the world by
raising the elevation of the
seas.

We should eliminate the
burning of soft coal per se!

And wouldn't you rather
save these delightful and
quixotic fellows — the Baggs
pronghorn antelope that bring
life and excitement to Southern
Wyoming than add carbon
Dioxide to the already

Burdened atmosphere - and a few lousy bucks to some pushy ranchers — just for a a few miserable BTU of soft coal - !

Once - the antelope are gone — They are gone !

Or do you Think the flooding of New York City and London is worth such a price ? -

After all there is plenty of hard coal anthracite around.

Sincerely
Jacqueline M Piccirillo

Jacqueline M. Ritchie
3825 Main Street
Brewster, MA 02631

Dec 29. 1984

Office of Surface Mining

Wyoming Environmental Quality Council
Bureau of Land Management
1300 North 3rd St
Rawlins, Wyoming 82301

Dear Sirs:

I see the Dept of Interior is still stalling over the Red Rim area of Wyoming as unsuitable for surface Coal mining known as Strip mining and producing lignite — not real coal.

lignite burns with a brown smoke and is a definite pollutor of the air we breath —

Pollution of the atmosphere is a definite hazard to all of us. Strip mining should be banned because pollution above the earth is warming up the glaciers and causing the seas to rise..

why are we on the eastern coast having California weather this winter?

128

Thank you for your comment.

and the West Coast is having our Normal winter weather?

Why has there been a drought in Africa so long as to cause famine + death to hundreds of thousands of humans?

Rising seas can damage New York and London. There is no way to protect the New York subway system from Rising Seas. How can anybody in his right mind destroy the Transit system of this large and Beautiful city — it is unthinkable.

We have only real hard coal to last us for 50 years and more — we don't need lignite — it is no substitute for BTU power — let us Ban strip mining once + for all

I'm sure the world is better off with pronghorn antelope running free than these lands of Wyoming

Sincerely

Jacqueline M Ritchie
(Mrs James Ritchie

Brewster Mass
Dec 22 1983

Wyoming Dept. Environmental Quality

Dear Sirs:

please honor the Nat. Wildlife Federation petition which claims the Red Rim Tract unsuitable for coal strip mining

In the first place coal strip Mining does not produce True coal — such as anthracite. But only gets us Lignite a very very soft coal — which produces more carbon dioxide per British Thermal Unit than regular coal.

Thank you for your comment.

131

As you may or may not know carbon dioxide in the atmosphere is warming up the world and melting the ice cap — endangering the whole world by raising the elevation of the seas.

We should eliminate the burning of sour coal per se.

And would'nt you rather save those delightful and quixotic fellows, the Baggs pronghorn antelope that bring life & excitement to Southern Wyoming than add carbon dioxide to the already burdened atmosphere — and a few lousy bucks to some pushy rancher? Just for a

few miserable BTU of
sour coal?

Or do you think the flooding
of New York City and
London is worth the price?

sincerely
Jacqueline M Ritchie

J. Ritchie
3625 Main st
Brewster Mass
02631

Jacqueline M. Ritchie
1025 Main Street
Brewster, MA 02631

Dec 29 1984

Wyoming Environmental Quality Council
Bureau of Land Management
1300 North 3rd St
Rawlins, Wyoming 82301

Dear Sirs:

I see the Dept. of Interior is still stalling over the Red Rim area of Wyoming as unsuitable for surface coal mining known as strip mining and producing lignite — not real coal.

Lignite burns with a brown smoke and is a definite polluter of the air we breathe.

Pollution of the atmosphere is a definite hazzard to all of us. It should be banned because pollution above the earth is warming up the glaciers and causing the seas to rise.

Why are we on the Atlantic coast having California weather

134

Thank you for your comment.

and the West coast is having our
Normal winter weather?
Why has there been drouth in Africa
so long as to cause famine + death
to Hundreds of thousands of humans?
Rising seas can damage New
York and London. There is no way
to protect the New York subway
system if this happens. How can
any body in his right mind destroy
the Transit system of this large
and Beautiful city — it is unthink-
-able —
We have enuf coal and coal
to last us for 50 years and more
— we don't need liquids - it is no
substitute for BTU power — lets
Ban strip mining once + for all —
I'm sure the world is better off
with Pronghorn antelope running
free thru these lands of Wyoming
sincerely
Jacqueline M Ritchie

D. Roberts
1616 N 287 Hy.
Rawlins Wyo
82301

SINCLAIR, WY
JAN 25
1985
82334

John Crow
Environmental Quality
Council
122 W. 25th St.
Herschler Bldg.
Cheyenne, Wy.
80002

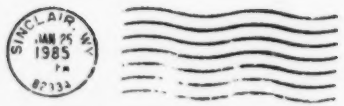
136

I'm against coal mining on the Red Rim because of the harm it will do to all the wild life that depend on that land to live on

Dave Roberts

Thank you for your comment.

Danny E Sanchez
P.O. Box 1674
Rawlins Wyo
82301




John Crow
Environmental quality Council
122 W. 25th St.
Herschler Building
Cheyenne Wyo. 80002

137

The Antelope in the Red Rim area go Through enough hardships without going Through any more, they put up with Ranchers Fences, Hard winters and poachers. the antelope ~~is~~ are probably our most profitable and stable Resourse. we Don't want another Hanna in our area So I am apposed TO the Red Rim Coal mining.

Danny E Sanchez

Thank you for your comment.

OFFICE Of Surface mining
P.O. box 1420
Mills, Wy. 82644

138

I am against the Red
Rim for Coal.

Bennie Scheirman
P.O. Box 155
Sinclair Wy 82334

Thank you for your comment.

Greg Se[illegible]
[illegible] #27
[illegible]

SINCLAIR, WY
JAN 25
1985
82334

John Crow
Environmental quality Council
122 W. 25th
Herschler Building
Cheyenne Wyo.
80002

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Im Agree The [illegible]
[illegible] R [illegible] coal.
[illegible] need [illegible]
[illegible].

Gregory Sewin

Thank you for your comment.

SINCLAIR, WY
JAN 25
1985
PM
82334

John Crow
Environmental Council
122 W. 25th
Herschler Building
Cheyenne Wy.
8000 2.

© USPS 1981

Dear Sirs:

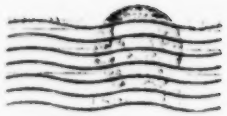
As a lifetime citizen of the state of Wyoming, I think the purpose of Red Rim Coal Mining Project would be detrimental to the wintering habitat of Wyoming's Antelope.

Mike Sheller
Greenstone #1 SP20
Rawlins Wy. 82301

Thank you for your comment.

[illegible]
1189 Pine #5
Rawlins Wy 82301

SINCLAIR, WY
JAN 25
1985
PM
82334



John Crow
Wyoming Environmental
Quality Council
122 W 25th St.
Herschlee Bldg.
Cheyenne Wy.
80002

© USPS 1981

I see no reason whatsoever to destroy a winter habitat that has taken hundreds of years to evolve, just for the financial profit of one individual

Thomas [illegible]

Thank you for your comment.

142

John Crowe, Hearing officer.
Wy. Environmental Quality Council
122 W. 25th St. Herschler bldg.
Cheyenne, Wy. 82002

January 26th 1985

Sir;

I received a copy of "Red Rim, Wyoming Petition Evaluation Document/Environmental Impact Statement Draft" from the Rawlins B.L.M. office several months ago. I studied this publication in it's entirety and as a Sportsman, and as the head of a family who earns his living in the "Energy" field I must ask that the "Red Rim Petition Area" be found unsuitable for all surface mining operations.

Living in Wamsutter I was able to see first hand the effects the "Fence" around "Red Rim" had on the local herd of Antelope. I have drawn Antelope licenses the last two years for area 55 and this year the numbers of Antelope in the Northern part of the area were greatly reduced. From my experiences and through the Affidavits of Harry Harju, (pg A-16), Dale Strickland (pg A-22), Dave Woody (pg A-20), and by the

Thank you for your comment.

Memorandum from the Area Wildlife Biologist (pg A-24), that it is and should remain a priority of the highest level to assure the Critical Winter Range remains available and undisturbed for the Antelope present in the area.

It is obvious in this part of the state that reclamation of any disturbed area takes years, and Continual reseeding for any vegatation to take hold. I cannot say I have seen 1 pipeline right of way that you can't follow to either horizon due to the vast differences in vegatation and the lack of Sagebrush on these right of ways.

I could go on and on and try to explain how I feel about the issues and how I came about these feelings but I imagine you are more interested in counting the yes or no votes for the Unsuitability Petetion.

Thank You for the Chance to State My views.

Bill Sieverma
Box 403
Wamsutter Wy. 82336

SINCLAIR, WY
JAN 25
1985
PM
82334

MR. JOHN CROW.
Envirometal Quality Council
122 W. 25TH ST.
Herschler Bldg.
Cheyenne, Wy.
80002

Dear Mr Crow,
I do not support the mining of Red Rim for coal. I do not believe the area can be restored to suitable winter Antelope habitat, the antelope are a very valuable natural Resource to wyoming & represent many dollars to this community. We have plenty of coal in less critical areas.
Sincerely,
Mark Smith
Box 182
Sinclair, Wy. 82334

Thank you for your comment.

SINCLAIR, WY
JAN 25
1985
82334

John Crow
Environmental Quality Council
122 W. 25th St.
Herschler Bldg.
Cheyenne, Wyo. 82002

145

I am against Mining
in Red Rim area.
Mining would ruin the winter
range for antelope.

/s/ Spence
Box 32
Sinclair, Wyo.

Thank you for your comment.

88

Feb. [illegible]

Dear Sir:

I would like to express my support to have the Critical antelope habitat on the Red Rim declared unsuitable for mining.

I feel that mining would cause much damage to critical winter range for the Baggs pronghorn antelope herd. Mining would result in displacement and crowding of animals, resulting in nutritional deficiencies. Restoration of the habitat after mining would be at such a high cost I would question the economic of mining such fragile land.

Surely 15,200 acres of land is not all that much in the land of plenty to put aside for these beautiful animals.

Thank you for your comment.

We really could learn to live with nature if we would only try.

Thank you for taking time to read my letter.

Mrs. Elsie Steckel
2847 E. Texas Blvd.
Allentown, Pa.
18103

Dec. 24, 1985

Dear Sir or ~~Madam~~,

As a former resident of Wyoming and one who greatly admires the State and its natural resources, I am writing out of concern for these resources, especially the Baggs pronghorn antelope herd.

Please use your authority to protect this herd against depletion or extinction by declaring the Red Rim tract unsuitable for mining.

Wyoming has a great gift of natural beauty and wildlife, and it seems such a shame to squander them.

Sincerely yours,

Alice H. Suter

Alice H. Suter
1501 Red Oak Drive
Silver Spring, MD 20910

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Thank you for your comment.

Dec. 29, 1983

Dear Sir or Madam,

As a former resident of Wyoming and one who greatly admires the State and its natural resources, I am writing out of concern for these resources, especially the Baggs Pronghorn antelope herd.

Please use your authority to protect this herd against depletion or extinction by declaring the Red Rim tract unsuitable for mining.

Wyoming has a great gift of natural beauty and wildlife, and it seems such a shame to squander them.

Sincerely yours,

Alice H. Suter

Alice H. Suter
1501 Red Oak Drive
Silver Spring, MD 20910

149

Thank you for your comment.

SWEETWATER COUNTY
WILDLIFE ASSOCIATION

February 4, 1985

Mr. John Crowe, Chairman
Wyoming Council of Environmental Quality
Herschler Building
Cheyenne, WY 82002

Greetings:

The Sweetwater County Wildlife Association urges you to sustain the Red Rim unsuitability petition. The issues are clear.

1. The area is critical winter habitat to a large population of pronghorn antelope.

2. If we don't preserve the area, populations will certainly decline.

3. The area may not be technically or economically reclaimable to former winter habitat conditions, and therefore, the antelope population may never recover.

4. The coal resources are of minimal national importance.

Please preserve the Red Rim for antelope habitat. There has never been a major decision favoring conservation that has later been regretted.

Sincerely,

Elsie McCasskill
President

150

Thank you for your comment.

December 8, 1983

Dear Mr. Klein,

I would like to comment on the Red Rim RED/dEIS. I have reveiwed the volume and would recommend Alternative A: to designate the entire petition area as unsuitable for all surface coal mining operations. My main concern is for the land and the wildlife. It has been shown by the Wyoming Game and Fish Department and other mining companies in Carbon and Sweetwater counties that the high winds and low annual precipitation make reclamation difficult at best.

As the Wyoming Game and Fish Department has shown, the area is critical antelope winter range as it stands right now. Reclamation would no doubt change the natural vegetation of the area. Mining activities in the Red Rim area would have adverse effects on the resident antelope populations by limiting habitat as well as access to the remaining habitat. Mining activities would also adversely affect the other native wildlife including: eagles, hawks, owls, prairie falcons, sage grouse and mule deer. We can all agree on what the potential impacts are. I think the issue is should we allow energy development in areas where the impact on wildlife is so high when there are many areas throughout the state where the impact on wildlife would be much less.

I also think it is wrong to allow the construction of a wildlife-proof fence such as Taylor Lawrence has built around his land. Already this winter has taken a natural toll on wildlife, but with man-made structures such as fences across migration routes unnecessarily high losses are inevitable.

I hope that the BLM and OSM see the need to protect Wyoming's wildlife and limit energy development when necessary.

Sincerely,

Meredith Taylor

Meredith Taylor
Box 363
Meeteetse, Wy. 82433

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Thank you for your comment.

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Thomas and Priscilla Terry
Rt. 2 Box 217
Caledonia, Mississippi 39740

Casper Field Office
Office of Surface Mining Reclamation
and Enforcement
U.S. Dept. of the Interior
P.O. Box 1420
Mills, Wyoming 82664

Dear Sir:

I am disturbed about the events last year that allowed a rancher to erect a fence on public property that was leased for grazing that almost cost the lives of numerous antelope that migrate to the Red Rim for winter range.

I support the petition to have critical antelope habitat on the Red Rim tract protected from mining, and I am against anyone preventing migratory animals from moving on public property.

Sincerely

Thomas A. Terry

Thank you for your comment.

February 5, 1985

Mr. John Crowe, Chairman
State of Wyoming
Council of Environmental Quality
Herschler Building
Cheyenne, WY 82002

Dear Mr. Crowe:

Please convey this letter to the entire council.

It is my opinion that the highest and best use for the Red Rim area is antelope habitat. The Wyoming Game and Fish and the Wyoming Wildlife Ferderation have shown beyond doubt that this area is critical to the survival of the present antelope population. Certainly, the intent of the surface mining control and reclamation act of 1977 was that areas be declared unsuitable for surface mining. The council has the opportunity to save pronghorn habitat of international importance.

People everywhere, and Wyoming people in particular, will benefit from the survival of this large, healthy antelope population. Our second largest industry depends on what makes Wyoming unique, like wildlife populations.

The estimated recoverable reserves at Red Rim would last America less than four and one-half weeks. (1)(2) America is a rich country. Our coal reserves are huge--estimates of supply range from 100 to 600 years. (3) A great strength of our democracy lies in our tradition that, when in conflict, public welfare supercedes the private interset of a few individuals.

We can afford to save this habitat of great importance to our state and nation.

Thank you for this opportunity to comment.

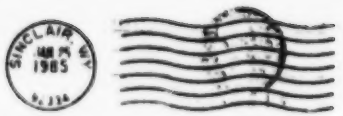
Sincerely,

Craig Thompson

(1) Red Rim Petition Evaluation Document, U.S. Department of Interior, October 1983.
(2) New York Times, February 3, 1985.
(3) Linowes Commission Report #400, Commission on Fair Market Value Policy, February 1984.

Thank you for your comment.

153




John Crow
Enviromental Quality Counsil
122 W. 25th St.
Herschler Bldg.
Cheyenne Wy. 82002

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The irreversable damage, caused by mining, to the fragile inviroment ~~Should~~ never have a price tag on it.
We cant ever replace God's Beauty.

Thank you for your comment.

December 30, 1983

Dear Sirs.

I am writing to support the National Wildlife Federation petition to have the critical antelope habitat on the Red Rim Coal tract declared unsuitable for mining.

I became interested in this issue when the National news showed many antelope that were blocked by a fence. I wrote to the National Wildlife Federation and have learned that portions of the fence have been removed. They have written to me about the pending petition and their arguments supporting this petition seem reasonable.

Sincerely,

Bernie J. Walling
2412 Emerald Dr.
Davenport, Ia.
52804



Thank you for your comment.

December 30, 1983

Dear Sirs,

I'm writing in regard to a petition that the Wyoming Wildlife Federation and National Wildlife Federation filed over a year ago and is now pending before the Federal office of Surface Mining and the Wyoming Dept. of Environmental Quality.

I would like to express my support for the petition which is to have the critical antelope habitat on the Red Rim tract declared unsuitable for mining. I became aware of this issue when the National Television news showed the fence which blocked the antelope from their habitat. Since the fence has been partially opened I have now learned of the pending petition, which seems reasonable.

Sincerely,

Bonnie J. Walling
2412 Emerald Dr.
Davenport, Iowa
52804

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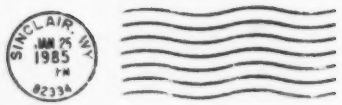
Thank you for your comment.




John Crow
Environmental Quality Council
122 W. 25th St.
Herschler Building
Cheyenne, Wy. 82002

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Dear: Mr. Crow

Let's keep the Red Rim for an antelope wintering area.

There is plenty of coal elsewhere in Wyoming.

Sincerely,
Wayne D. Wagstaff
115 E. Mt. View Blvd.
Rawlins, Wyo 82301

Thank you for your comment.

OFFICE OF SURFACE MINING
P.O. Box 1420
MILLS, WY. 82644

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Seems like we have enough coal mines shout down in this county as it is, lets keep a habitat For ant:lope.

Tom Wilson
1075 7th St.
Sinclair Wyo 80334

Thank you for your comment.

# PUBLIC HEARING

# A. WRITTEN STATEMENTS OF PUBLIC-HEARING TESTIMONY AND POST-HEARING COMMENTS

NATIONAL WILDLIFE FEDERATION

Rocky Mountain Natural Resources Clinic
Box 401, Fleming Law Building, Boulder, CO 80309
303 492-6552

BY FEDERAL EXPRESS

6 February 1985

Mr. John Crowe
Wyoming Environmental Quality
Council
Emerson Building Room 304
2001 Capitol Avenue
Cheyenne, Wyoming 82002

Mr. Allen Klein, Administrator
Western Technical Center
Office of Surface Mining
1020 15th Street
Denver, Colorado 80202

Re: Red Rim Unsuitability Designation Petition -- post-hearing comments, written testimony and exhibits of Wyoming and National Wildlife Federations.

Dear Messrs. Crowe and Klein:

Enclosed please find one volume (one to EQC, one to OSM) containing petitioners' (1) post-hearing comments on the joint unsuitability designation hearing held in Rawlins, Wyoming on January 23 - 24, 1985; (2) written testimony relied on at the hearing; and (3) exhibits presented at the hearing. We have sent two additional copies of this volume by first class mail to the Wyoming EQC.

If you have any questions, please feel free to call me at (303) 492-6552. Thank you.

Sincerely,

Thomas D. Lustig
Attorney for Petitioners
Wyoming and National Wildlife
Federations

cc: David Freudenthal, Esq. (w/ entire volume)
John MacPherson, Esq. (w/entire volume)
Weldon Caldbeck, Esq. (w/petitioners' post-hearing comments only)

BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL

AND THE UNITED STATES DEPARTMENT OF INTERIOR,

OFFICE OF SURFACE MINING

| | |
|---|---|
| IN THE MATTER OF THE PETITION TO DESIGNATE A 20,480 ACRE TRACT KNOWN AS "RED RIM," AS UNSUITABLE FOR SURFACE COAL MINING OPERATIONS | ) ) ) ) ) |

POST-HEARING COMMENTS OF PETITIONERS WYOMING AND NATIONAL WILDLIFE FEDERATIONS ON QUESTIONS AND ISSUES RAISED AT THE JOINT UNSUITABILITY DESIGNATION HEARING HELD IN RAWLINS, WYOMING JANUARY 23 - 24, 1985

•••

WRITTEN TESTIMONY OF PETITIONERS RELIED ON AT THE JANUARY 23 - 24, 1985 RAWLINS HEARING

•••

PETITIONERS' EXHIBITS PRESENTED AT THE JANUARY 23 - 24 RAWLINS HEARING

Thomas D. Lustig
Attorney for the Wyoming and
National Wildlife Federations
Box 401 -- Fleming Law Building
Boulder, Colorado 80309
(303) 492-6552
6 February 1985



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POST-HEARING COMMENTS OF PETITIONERS WYOMING AND
NATIONAL WILDLIFE FEDERATIONS ON
QUESTIONS AND ISSUES RAISED AT THE JOINT UNSUITABILITY
DESIGNATION HEARING HELD IN RAWLINS, WYOMING
JANUARY 23 - 24, 1985

The Petitioners Wyoming and National Wildlife Federations offer the following post-hearing comments on questions and issues that arose and were in need of clarification during the public hearing in Rawlins, Wyoming on January 23 - 24, 1985. To assist the Environmental Quality Council (EQC) and Office of Surface Mining (OSM) in using these comments, we have attempted to organize them into three categories: (1) legal and policy questions; (2) questions regarding antelope behavior and needs; and (3) questions on reclamation feasibility.

Where petitioners' experts provided a specific answer to a question, the exact words of the expert are set forth. Otherwise the answers were arrived at by the experts, counsel, and members of petitioning organizations.



## I.
## LEGAL AND POLICY QUESTIONS

1. Why is it important to make an unsuitability designation at this time, rather than wait until an applicant requests a permit to mine?

Congress had important reasons for including an unsuitability designation petition process in the Surface Mining Control and Reclamation Act (SMCRA), rather than deferring decisions until the permit stage. In providing for pre-permit unsuitability designations, Congress' general goal was:

> premised on the notion that successful management of surface mining depends, in large part, on the application of rational planning principles. While coal surface mining may be an important and productive use of land, it also involves certain hazards and is but one of many alternative land uses. In some circumstances, therefore, coal surface mining should give way to competing uses of higher benefit. Section 522 establishes a program by which such decisions can be made. H.R. Rep. No. 95-218, 95th Cong., 1st Sess. 2, reprinted in 1977 U.S. Code Cong. & Ad. News 593, 630.

There are three particular reasons that support Congress' decision to use the unsuitability process rather than wait until the crisis was at hand and a permit application had been presented. First, industry may benefit from the unsuitability designation process because it may "in advance of application, identify lands which are either not open to surface mining or where surface mining is subject to restrictions." Id. at 631.1/ Second, the unsuitability process guarantees that protection of sensitive areas would not be overwhelmed by the momentum of the permitting process. Third, the unsuitability process avoids the risk that protective permit stipulations may fail, and in failing, seriously harm sensitive areas. Following is some further explanation for the last two reasons.

(a) Protection against the momentum of the permitting process.

Congress understood that one reason for unsuitability designations in advance of the permit application is to avoid the substantial momentum a permit has achieved by the time it reaches the regulatory agency. If protection of critical lands had to await the permitting process, then efforts to protect the area would have to withstand the full momentum of a mining company with volumes of mining plans, prepared over years, at enormous expense. As a practical matter well understood by Congress, the substantial investment and commitment made by the applicant as well as by state and federal agencies which have worked with the applicant, makes it almost impossible to turn the thrust of the application, much less deny it in its entirety.

---

1/ In promulgating regulations pursuant to §522, the Secretary stated that "early action will help clarify which Federal Lands might be available for subsequent leasing and mining. In particular, this could help operators save time and money in both short and long-range coal development planning." 44 Fed. Reg. 77444 (December 31, 1979).

By the time the permit application is prepared, the entire mindset of the permitting agency is more amenable to approving the permit (perhaps with revisions) than it is at the unsuitability stage, despite the fact that more stringent protection or outright permit denial might be warranted. Congress knew that it is part of human, and agency nature to hesitate before interfering with a process that is well underway. Rather than subject sensitive lands to the momentum of a well-developed permit application, Congress allowed decisions to be made when the scales were more balanced, and agencies less committed to following through with a long-ago initiated process. It achieved this by providing for unsuitability designations prior to the permit.2/

(b) Protection against the risks of the permit not being enforced.

Even assuming that an agency fairly resists the momentum of a permit application and grants a permit with stipulations sufficiently rigorous to protect the resources at risk, Congress knew that those permit stipulations are not inviolable. The regulatory agency's intent to protect the resource through permit stipulations may, for a number of reasons, never be implemented. Unenforced stipulations can lead to destruction of the resource that the agency had intended to protect in the permit stipulations. The means to avoid the risk that permit stipulations will not be enforced is, of course, the unsuitability designation process.

Unfortunately, the failure to implement and enforce permit stipulations can, and has, arisen for a host of reasons. The agency responsible for monitoring and enforcing the stipulations may find that its personnel have been reduced, or its budget decreased, or that it has been saddled with newer and more pressing obligations which compel it to pay less attention to older stipulations. Regulatory agencies have also been known to lose interest in enforcing items over a twenty to forty year period. All these risks jeopardize the resource that the permit was supposed to protect -- and all these risks of non-enforcement are avoided by an unsuitability designation.

Finally, even if the regulatory agency maintains the staff, budget, and enthusiasm to enforce stipulations, the fate of the resource still lies in the hands of the permittee. Despite best-efforts to set bond requirements, there's no guarantee that if the applicant goes bankrupt midway through the project, there will be adequate funds to protect the resource. This is particularly true when bonding must address new and untested measures to restore and protect the resource, as on Red Rim. Should the applicant run into insurmountable technical and/or financial problems before it has complied with protective stipulations and adequately restored the land, there is little assurance that the bond held by the regulatory agency would be adequate to finish the job. These additional risks are precisely the risks avoided by following the Congressional option to designate an area unsuitable rather than relying on permit stipulations.

(c) Practical experience supports an unsuitability designation.

The policy considerations behind the unsuitability process are backed by practical experience. Dr. Bunin gives an example:

> In fact, mines are not simply refused at the permitting stage. If an application is deemed insufficient, and the applicant chooses to respond to make the application acceptable, the mine gets permitted. There is concern about this at the federal as well as the state level. For example, the 1984 report of the Office of Technology Assessment of the U.S. Congress, Environmental Protection in the Federal Coal Leasing Program, states that "deferral of unsuitability determinations to the

---

2/ An excellent example of the kind of momentum that presses upon an administrative agency when it delays a decision until the permit stage is offered by the compensation statute cited by Mr. MacPherson, the private surface owner's attorney. At the hearing he read Wyo. Stat. §35 - 11 - 1001(b), which allows persons with mineral rights or persons or corporations who have "made substantial capital expenditure and commitments to mine mineral rights," which have been denied because they would impair an area of unique and irreplaceable natural value, to seek compensation if there has been an unconstitutional taking. This statute illustrates that if there is a taking, the state may have to pay not only for the mineral rights, but if it waited until the permit process to deny the mine, it may also be liable for the millions of dollars the company has spent in developing the mine plan. Knowledge of this possible increased financial penalty places more pressure on an agency to grant the permit -- pressure that does not exist at the unsuitability stage, before the company has made the investment in preparation of the mine plan.

permitting stage increases the risk that an environmentally sensitive tract will be mined." (p. 19)

2. What criteria must the EQC and OSM apply in deciding whether to grant the petition to designate Red Rim as unsuitable for surface coal mining?

(a) What criteria must EQC and OSM apply?

What criteria must be applied in passing upon the petitioners' request that Red Rim be designated as unsuitable for surface coal mining? Both federal and state agencies have identical requirements as to when they must designate an area as unsuitable.3/ Each agency:

> shall designate ... an area unsuitable for ... surface coal mining operations if it is determined that reclamation pursuant to the requirements of this act is not technologically and economically feasible.... Wyo. Stat. 35-11-425(b)(i), See also SMCRA §522(a)(2) and (b), SMCRA §523(a), 30 C.F.R. §762.11(a) (1982).

While the above section requires that an area be designated as unsuitable once certain findings are made, agencies also have discretionary authority to make such designations under Wyo. Stat. 35-11-425(b)(ii) and 30 CFR §762.11(b). For example, the federal regulation, almost identical with the Wyoming statute, provides:

> Upon petition an area may be (but is not required to be) designated as unsuitable ... if the operations will--
>
> (1) Be incompatible with existing State or local land use plans or programs;
>
> (2) Affect fragile ... lands in which the operations could result in significant damage to important ... esthethic values or natural systems....30 C.F.R. §762.11(b).

While the discretionary criteria that EQC and OSM could apply were discussed at the hearing, there was virtually no discussion of the criteria the agencies must apply to determine whether designation of the area is mandatory.

So, going back to the requirement that an area shall be designated as unsuitable if "reclamation pursuant to the requirements of this act is not ... feasible," how do EQC and OSM decide on whether reclamation is feasible?

For the state, the answers are found in DEQ's Rules & Regulations, Chapter IV, §2, titled "General environmental protection performance standards." Section 2(a)(1) provides that:

> Reclamation shall restore the land to a condition equal to or greater than the "highest previous use." The land, after reclamation, must be suitable for the previous use which was of the greatest economic or social value to the community area, or must have a use which is of more economic or social value than all of the other previous uses.

To determine whether reclamation pursuant to the Wyoming statute's requirements is feasible, EQC must find one of two things. Either the postmining use of the land (1) must be suitable for the previous use which was of the greatest economic or social value to the community; or (2) it must be of more economic or social value than all of the other previous uses. If the EQC concludes that reclamation can satisfy neither of these tests, then it must conclude that reclamation pursuant to the Act's requirements is not feasible and must therefore designate the area as unsuitable.

The OSM criteria with which to decide if reclamation pursuant to the Act is feasible are virtually identical to the Wyoming test:4/ SMCRA §515(b) sets forth general performance

---

3/ The requirements vary slighty depending on whether the lands fall under federal or state jurisdiction. When such a difference arises, it has been noted.

4/ The Federal test is actually stricter than the state test -- this more rigorous standard is discussed in question 4 below.

standards, which require the operation as a minimum to:

> (2) restore the land affected to a condition capable of supporting the uses which it was capable of supporting prior to any mining, or higher or better uses of which there is a reasonable likelihood, so long as ... the permit applicants' declared proposed land use following reclamation is not deemed to be ... inconsistent with applicable land use policies and plans ....

This federal inquiry into whether reclamation, pursuant to the Act, is feasible, requires either that OSM make findings virtually identical to those that EQC must make, or that it designate the area as unsuitable. OSM's required findings on whether reclamation is feasible are specifically set out in 30 C.F.R. Part 816 -- Permanent Program Performance Standards:

> All affected areas shall be restored in a timely manner --
>
> > (1) To conditions that are capable of supporting the uses which they were capable of supporting before any mining; or
> > (2) To higher or better uses achievable under criteria and procedures of this section. 30 C.F.R. §816.133(a).

What it boils down to is that both EQC and OSM must decide either (1) that reclamation can achieve postmining conditions capable of supporting the pre-mining land uses, or (2) that reclamation can achieve postmining conditions that will support a higher and better use of the land.[5/] If either OSM or EQC cannot make one of these findings, then they must designate the area as unsuitable because reclamation pursuant to the Act's requirements is not feasible.

(b) What is the result of applying these criteria?

There are several questions EQC and OSM must resolve in applying the above criteria. The first is, what was the pre-mining use?

---

5/ Again, question 4 below discusses an additional, and stricter OSM standard.

Wyoming considers this standard to be the "highest previous use" which it defines in Chapter I of DEQ's Rules & Regulations, §2(38) as: "Highest previous use" means a sustainable use of the land which has the greatest economic and social values to the people of the area prior to the commencement of the mining operation.

OSM considers this to be the "pre-mining use" which is defined in 30 C.F.R. §816.133(b) (1982): "Determining pre-mining use of land. The pre-mining uses of land to which the postmining land use is compared shall be those uses which the land previously supported, if the land had not been previously mined and had been properly managed."

Whichever definition is used, the pre-mining use of Red Rim has been as critical winter range for antelope. While Red Rim has supported a summer range for sheep (see remarks of Mr. MacPherson on the second day of the Rawlins hearing), and while it currently supports Mr. Lawrence's use as spring range for his steer operation, neither of those uses has conflicted with its critical and historic role as winter range for antelope. Consequently, the pre-mining use to which Red Rim must be restored (unless there is a higher and better postmining use, see below) is winter range for antelope and spring range for steers -- these are not only the "highest previous uses," they are virtually the only previous uses.

As for postmining uses, there are none that meet the federal or state tests ("more economic or social value than all of the other previous uses," -- DEQ Rules & Regulations, Chpt. IV, §2(a)(1); "higher or better uses" -- 30 C.F.R. §816.133(a)(2) (1982)). Although Mr. Lawrence suggested that he would double his spring steer operation, displacing antelope by planting mined-over lands with crested wheat, petitioners' economic expert refuted this. Dr. Crocker testified without contradiction that there was no evidence to demonstrate Mr. Lawrence's scheme had any more economic or social value than previous uses.

Where does this leave us? With two conclusions -- (1) that the only, and highest previous use was and is for critical antelope winter range and spring steer grazing, and (2) that there is no credible suggestion of any higher or better postmining alternative. Given this, both Wyoming and federal law require that any mined lands be restored to the pre-mining use -- restored to use as critical winter pronghorn range and spring steer range. It also means that if restoration to the current use is not feasible, then both EQC and OSM must designate Red Rim as unsuitable.

We believe the additional finding that both EQC and OSM will make, based in part on testimony of Drs. Bunin and Alldredge, is that it would not be possible to reclaim Red Rim, once mined, to its current critical use by antelope. Under the statutes, the result must be to grant the petition.

3. Given that EQC denied petitioners' appeal of Mr. Ackerman's June 2, 1982 decision, what is the effect of that decision on the criteria to be applied to the petition?

It has been over two and one-half years since the Administrator (Mr. Ackerman) of the Wyoming Department of Environmental Quality, Land Quality Division (LQD) dismissed petitioners' request that Red Rim be designated as unsuitable under the mandatory provisions of Wyo. Stat. 35-11-425(b)(i). It is only now, through the brief Mr. Caldbeck submitted on the first day of the Rawlins public hearing, that petitioners realize that the LQD construction of Mr. Ackerman's June, 1982 decision does not conflict with the way petitioners believe that the Wyoming statute should be applied.6/

As is more fully discussed under question 2 above, petitioners agree that LQD has great discretion in implementing the mandatory designation provision of Wyo. Stat. 35-11-425(b)(i) and the postmining land use criteria of Chpt. IV, §2(a)(1) of DEQ's Rules & Regulations. Under Wyoming law, EQC and LQD have discretion to first determine the "highest previous use" of the land, and then to determine whether there are possible alternative postmining uses which are "of more economic or social value than all of the other previous uses."

However, after LQD/EQC make these discretionary determinations, if they find (1) that the current use as critical winter range is the highest previous use, and (2) that there are no alternative postmining uses that are of more economic or social value, then they must find either (a) that it is feasible to restore the land, if mined, to the current use or (b) they must designate the area as unsuitable.

6/ In fairness, the Council may wish to solicit Mr. Caldbeck for his views. Petitioners have provided him with a copy of these comments.

As we read Mr. Caldbeck's brief, this is the way he would construe Mr. Ackerman's 1982 decision. For example, on page 3 of his brief Mr. Caldbeck writes:

> NWF/WWF predicated the applicability of W.S. 35-11-425(b)(i) upon the argument that "wildlife habitat" was the only allowable post mining land use and that this particular land use was not technologically and economically feasible. Unfortunately, such an argument fails unless it is also clear that no other reclamation alternative would be technologically and economically feasible. [emphasis original]

Petitioners have no quarrel with Mr. Caldbeck's explanation -- we assert that critical pronghorn winter range is the only allowable postmining land use because we believe that EQC/LQD, in their discretionary determinations, will find (1) that antelope winter range is the highest previous use, (2) that there are no alternative uses that are of more social or economic value, and (3) that reclamation to the current use is not feasible.

In other words, we concur with Mr. Caldbeck's assertion that restoration to the existing wildlife habitat is not required "unless it is also clear that no other reclamation alternative would be technologically and economically feasible." [emphasis original] But it is the petitioners' belief that when the Council completes its review of the evidence and makes its discretionary factual conclusions, it will conclude that "no other reclamation alternative would be ... feasible," because there is no alternative use of Red Rim that complies with Wyoming Law (DEQ Rules & Regulations, Chpt. IV, §2(a)(1)).

Mr. Caldbeck's interpretation of the June 1982 Ackerman decision is far more rational than what petitioners originally took as its meaning -- that no matter what discretionary findings EQC/LQD made, they were never obligated to require restoration to the current use. Had the Ackerman decision meant that regardless of EQC/LQD's factual conclusions, reclamation to existing wildlife habitat was never required, then it would have effectively repealed Wyo. Stat. 35-11-425(b)(i) and DEQ Rules & Regulations Chpt. IV, §2(a)(1). Mr. Caldbeck's brief reassures us that the Ackerman decision means simply that EQC/LQD have the discretion to make the required findings, but if those findings

satisfy the statutory criteria, an unsuitability designation is mandatory.7/

4. Does designation of Red Rim as critical winter habitat for antelope by the Wyoming Game & Fish Department affect EQC's and OSM's obligation to designate Red Rim as unsuitable?

In question 2 above, we discussed the fact that SMCRA §515(b)(2) requires either that the land be restored to: (1) a condition capable of supporting the uses which it was "capable of supporting prior to any mining," or (2) to "higher or better uses." However, there is an additional requirement -- any alternative postmining use, regardless of whether it is a "higher or better" use, must not be "inconsistent with applicable land use policies and plans..."

This statutory limitation is echoed in the supporting federal regulations --

> [T]he permit area shall be restored, in a timely manner, either to conditions capable of supporting the uses they were capable of supporting before any mining or to conditions capable of supporting approved alternative land uses. Alternative land uses may be approved by the regulatory authority ... if the following criteria are met:
>
> > (1) The proposed postmining land use is compatible with ... existing local, State, or Federal land use policies and plans .... 30 C.F.R. §816.133(c).

The Wyoming Game and Fish Department (WG&F) is the agency with primary responsibility for planning and management of wildlife and wildlife habitat within Wyoming. See Wyo. Stat. 23-1-302 (1977). Pursuant to these duties, WG&F has prepared "A Strategic Plan for the Comprehensive Management of Wildlife in Wyoming 1984-1989 Vol. III," which includes specific policies and goals for the state.

At page 16, the Plan deals with pronghorn antelope population and habitat goals: "STATUS AND USE: There are 54 separate herds of antelope in Wyoming...They seasonally occupy 70,806 square miles of habitat, of which 5,110 square miles are considered critical."

In a November 30, 1979, letter to Dick Hartman, State Planning Coordinator, from WG&F Assistant Director Donald Dexter, the Red Rim tract is identified as containing "critical winter range" for pronghorn antelope. According to the letter, mining on the tract would cause the loss of "fifty to eighty per cent of antelope ... habitat, including critical antelope winter range."8/

It is apparent that any alternative "higher or better use" of the Red Rim tract that fails to provide for its use as critical winter range for pronghorn, is inconsistent with "State ... land use policies and plans" as defined in the WG&F's Strategic Plan. Accordingly, alternative postmining uses that do not provide critical winter pronghorn habitat are impermissible alternatives for the federal lands, and would not provide for the mandated reclamation pursuant to the requirements of the Act.

5. Do the petitioners bear the burden of proving that when the facts are examined in light of the above criteria, EQC and OSM must designate Red Rim as unsuitable?

The question arose whether any party had the burden of persuading EQC and OSM that the facts it purported were the correct facts. In particular, there was a suggestion that the petitioners had a burden to prove that reclamation was not feasible pursuant to the Act's requirements.

The answer is relatively simple, for federal regulations provide that no party shall bear any burden of proof. In both the federal regulations that establish minimum procedures and standards to be included in each approved State program for designating areas unsuitable (30 C.F.R. § 764.15(a)(3)), and in their counterpart that establishes the federal procedures for unsuitability designations on federal land (30 C.F.R.

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7/ Of course, OSM's decision is not subject to the Ackerman decision, regardless of what it might mean.

8/ WG&F's designation of the Red Rim tract as critical winter range was acknowledged by intervenor Rocky Mountain Energy. Twice in his testimony, Mr. Taylor noted that WG&F had designated Red Rim as critical winter range for pronghorn.

§769.14(d)), the regulations provide that: "Once the requirements of §764.13 are met, no party shall bear any burden of proof, but each accepted petition shall be considered and acted upon by the [regulatory authority]."

The §764.13 requirements in turn provide that "the only information a petitioner need provide is:"

(1) The location and size covered by the petition;
(2) Allegations of facts and supporting evidence which would tend to establish that the area is unsuitable ...;
(3) A description of how mining of the area ... may adversely affect ... other resources;
(4) The petitioner's name, address and telephone number; and
(5) Identification of the petitioner's interest which is or may be adversely affected.

Petitioners established all the above in their petition and in subsequent amendments to the petition shortly after it was filed. Any burden now lies on the EQC and OSM to assess the facts before them, make additional inquiries they believe necessary, and decide upon the petition.



However, while petitioners have no formal burden to persuade EQC or OSM, we nonetheless believe that the evidence we have presented in our papers, exhibits, and at the public hearing clearly establishes that postmining reclamation of Red Rim could not meet the standards of either the state or federal acts. Accordingly, the National and Wyoming Wildlife Federations believe the evidence before the OSM and EQC substantially supports a decision to designate Red Rim as unsuitable for surface coal mining.

## II.
## QUESTIONS REGARDING PRONGHORN BEHAVIOR AND NEEDS

6. How important are steep, sagebrush-vegetated slopes to pronghorn in winter, as opposed to undulating terrain?

Dr. Alldredge states: "Steep slopes broken by draws and vegetated with sagebrush appear to be vital for pronghorn

survival during winters of severe cold and deep snow accumulation. Terrain such as this is often blown free of snow which affords pronghorn feeding sites. Terrain dissected with draws provides protection from wind and snow catchment basins which ultimately provide sagebrush with needed moisture.

"Influence of variable 'terrain' on snow accumulation also influences the animal's ability to move about on winter ranges. Gently undulating terrain commonly associated with sagebrush grasslands is not as apt to be snow-free and may not afford protected areas from blowing wind and snow. During the winter of 1983 - 84, 75% of our radio-telemetered pronghorn in the Red Desert attempted to survive winter in undulating terrain, and all perished."

A

The importance of topographic diversity and sagebrush availability to wintering pronghorn is discussed in sections IIA and IVB. Your phrase "gently undulating" describes the configuration of sagebrush-dominated terrain only generally, without specific reference to the aspect, gradient, and dominance of hillslopes within Red Rim's terrain. Therefore, OSM cannot define the degree to which the phrase would accurately describe postmining Red Rim terrain. The aspect of any terrain, in relation to prevailing winter winds, would determine whether or not the forage there would be swept free of snow and so would be available to pronghorn. As stated in section IVD, reclamation of Red Rim topography to approximate its premining configuration (reclamation scenario 1) would have the least adverse impact on wintering pronghorn.

A

7. Are the proposed BLM no surface occupancy restrictions adequate to protect pronghorn winter ranges?

Dr. Alldredge states: "No. These restrictions were designed only to protect the rim itself and its eastern exposure and riparian habitats associated with Separation Creek. They were not intended to protect pronghorn range and do not do so. Pronghorn use is predominantly in the uplifted terrain between the riparian area and the top of the rim."

B

To determine where pronghorn concentrate at Red Rim, Irwin and others (1984) divided a 24,621-acre study area into four different subareas (the Red Rim, the Separation Creek, the Central, and the Northeast subareas). The current pronghorn no surface occupancy area contains parts of the Red Rim subarea, which, of the four subareas, supports the second highest concentration of wintering pronghorn (Irwin and others, 1984). Therefore, although adopting the current no surface occupancy area would not mitigate all adverse impacts to wintering pronghorn, it would preclude surface disturbances (including a railroad spur) along the east side of the tract and within parts of the valuable Red Rim subarea.

B

8. Can snow fences mitigate the loss of varied topography on Red Rim?

Dr. Alldredge states: "While snow fences serve to reduce wind speed and result in snow accumulation, they could not replace variable topography primarily because the slope angle and exposure to incoming solar radiation on existing natural slopes are important in influencing loss of snow in winter. Furthermore, fences and associated snow drifts could readily impede pronghorn movement on winter ranges."

C

We agree that snow fences (and other small surface-manipulating features, such as contour furrows), by themselves, are not a substitute for the gross topographic features that affect snow-accumulation patterns in the Red Rim area, particularly during severe winter storms. However, snow fences may enhance or control snow accumulation to a certain extent, even if the existing topography is not changed. To our knowledge, widespread use of snow fences has not been suggested as a mitigation measure for any major alteration of topography that could occur as the result of mining.

C

9. Why can't pronghorn use alternative winter ranges if their use of Red Rim is precluded?

Dr. Alldredge states: "This question is thoroughly covered in my testimony, thus I will answer briefly here. First, the Muddy Creek winter range has been over-grazed by domestic sheep

D and currently could not support any additional pronghorn. Second, once pronghorn are on Red Rim in winter, movement to other areas is restricted by deep snow. Third, small islands of postulated winter habitat exist near Red Rim, but these are small and are available only in mild winters. During the severe winter of 1983-84 pronghorn that attempted to winter in these areas experienced almost total mortality. Lastly, use of winter areas is traditional to some extent; thus the question remains as to how pronghorn would 'learn' that other winter areas are available if they did exist."

D Your comment reiterates statements made in sections IIA and IVB.

E 10. Would fewer, but healthier shrubs be adequate on pronghorn winter ranges?

Dr. Alldredge states: "The best answer to this question would be with a thorough discussion of probability theory. Simply stated, the greater the number of individual shrubs, the greater is the probability that some of these would be available for forage either above the snow or in snow-free areas. In addition, it is dubious that a few large shrubs could sustain the same total tissue biomass removal that could be sustained by a community of many individuals."

E Several factors influence the availability of shrubs for use by pronghorn on Red Rim. Reclaiming Red Rim to its premining density of shrubs would not necessarily ensure the availability of sufficient shrub biomass for pronghorn. Shrubs planted to a high density would likely be smaller than shrubs planted more sparsely, owing to competition among individuals; many of these smaller plants could be covered by snow and so would be unavailable to pronghorn. Planting shrubs to somewhat reduced densities could yield larger plants capable of protruding through the snow. These robust plants could sustain more browsing by pronghorn. Obviously, fewer than premining plants would not initially equal or exceed premining biomass; however, with time and given favorable conditions, certain stands could produce more biomass. See responses to comment Nos. 6BF, 6BZ, 6CB, and 100U.

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F 11. Would reduction in the amount of domestic sheep grazing on the Muddy Creek range provide more winter forage for pronghorn?

Dr. Alldredge's opinion is: "Pronghorn and domestic sheep have much greater dietary overlap than do diets of cattle and pronghorn. Reduction in sheep use of critical ranges could, in time, result in increased winter forage for pronghorn. The major problem with this approach would, however, be a political problem of actually requiring a sheep operator to remove what would probably be a significant portion of his flock from a traditional range."

F We agree that the management of the Muddy Creek critical winter range could be altered to favor increased use of the range by pronghorn. (Please note that Wyoming GFD has submitted an alternative for development of Red Rim (comment No. 114; alternative C1c) that specifies a change in grazing-management policy for the Muddy Creek critical winter range to increase its forage yield for the Baggs Herd until Red Rim has been reclaimed.) However, such an alteration would not be entirely effective in mitigating impacts to the pronghorn inhabiting Red Rim and adjacent areas, because the Muddy Creek range is often not accessible to those pronghorn occupying the northern portion of the Baggs Herd unit area (on or near Red Rim) during severe winters. See response to comment No. 111Z.

G 12. Could reduction of some spring-summer cattle use on Red Rim make more forage available for pronghorn in winter?

Dr. Alldredge responded to this in his written testimony where he wrote: "This preposterous suggestion is infeasible because there is almost no dietary overlap between cattle spring-summer diets and pronghorn winter diets. Reduction in

G We agree that reducing cattle use of critical winter range during the spring and summer would not increase the capability of the range to support pronghorn during the winter.

cattle spring-summer use would increase the amount of grass left on ranges but this would not benefit pronghorn that rely on 95% sagebrush in winter."

III.
QUESTIONS REGARDING THE FEASIBILITY OF
RECLAMATION TO CRITICAL PRONGHORN WINTER RANGE

13. Did RME's slides of transplanted sagebrush demonstrate a viable method of reclaiming Red Rim sagebrush suitable for pronghorn winter use?

H

The PED notes (e.g. see p. IV - 47) and Dr. Bunin explain that: "The results of RME's test plot for transplanting big sagebrush are not directly applicable to reclamation of slopes providing pronghorn winter forage because: (a) the test plot shown and used by RME had gently sloping, deeper soils; (b) precipitation was far above average during part of the test period; and (c) many of the techniques used on the test plot would be impractical on much of the reclaimed areas."

H

The RME study demonstrated that individual big sagebrush plants (probably Artemesia tridentata ssp. tridentata, rather than ssp. wyomingensis) could be successfully removed with a tree spade and transplanted onto some parts of Red Rim with a reasonable chance of survival. As you point out, RME conducted its study on a site demonstrating some of the most favorable soil and geomorphic characteristics in the Red Rim area. We generally agree with your conclusions, but we do not believe RME intended the study to resolve all the issues pertinent to the reestablishment of plant communities dominated by big sagebrush of various subspecies. The purpose of the study and the conclusions that may be drawn from it are discussed in section IVC. Also see response to comment No. IIIAE.

14. Could natural reproduction by big sagebrush adequately revegetate mined lands for winter use by pronghorn?

I

Dr. Bunin's experience is that: "Natural invasion by big sagebrush of the drier sites in the Hanna Basin is very slow. In these conditions (which are those supporting pronghorn forage), natural invasion is unlikely to contribute measurable big sagebrush density or cover within twenty years after disturbance and unlikely to contribute significant big sagebrush density or cover within forty years after disturbance."

I

In general, the natural regeneration or invasion of big sagebrush, particularly of Wyoming big sagebrush (Artemisia tridentata ssp. wyomingensis), is very slow. Wyoming big sagebrush does not often set viable seed and, when it does, climatic conditions are often not conducive to seed germination and establishment. For example, if the seed set occurs once every five years and appropriate climatic conditions occur once every five years, the probability of these two events occurring simultaneously would be 4 percent (1 in 25), considerably lower than the 20-percent probability of either of the events occurring alone. In consequence, natural regeneration or invasion of sagebrush is intermittent at best. Therefore, although natural invasion could augment sagebrush planting, it could not be relied upon in the short term.

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WRITTEN TESTIMONY OF PETITIONERS RELIED ON AT THE JANUARY 23 - 24 RAWLINS HEARING

BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL

AND THE UNITED STATES DEPARTMENT OF INTERIOR,

OFFICE OF SURFACE MINING

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|---|
| IN THE MATTER OF THE PETITION TO DESIGNATE A 20,480 ACRE TRACT KNOWN AS "RED RIM," AS UNSUITABLE FOR SURFACE COAL MINING OPERATIONS |

TESTIMONY OF THOMAS D. LUSTIG
BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL
AND THE FEDERAL OFFICE OF SURFACE MINING, RAWLINS, WYOMING,
23 JANUARY 1985

Mr. Crowe, Mr. Albrecht, members of the Council, Ladies and Gentlemen. My name is Thomas Lustig and I am the attorney for the petitioners, the Wyoming and National Wildlife Federations. I appreciate the opportunity to appear before you today. To assist you in making your determination, the majority of our testimony, including copies of our exhibits, will be submitted in written form before the close of the comment period.

When Lewis and Clark crossed the Mississippi, the first two mammals they saw were a buffalo and a pronghorn. You can't find buffalo anymore, and to see a pronghorn you've got to come to Wyoming.

The loss of pronghorn habitat, illustrated by our first Exhibit (a map showing antelope distribution in the United States when white men arrived the west and the current vastly reduced pronghorn distribution -- Exhibit 1) is a sad chapter in the loss of America's natural resources.

Fortunately, the people of the United States, their Congress and the State of Wyoming realized that America's loss of its wildlife need not continue -- that we can have growth and development while protecting our natural resources.

To ensure Wyoming's and our country's continued development while simultaneously saving those resources, like the pronghorn, that still remain, Congress crafted a series of statutes, among them the Surface Mining Control and Reclamation Act.

The Surface Mining Act allows mining to continue while protecting vital essential lands critical to wildlife. It allows the Wyoming and National Wildlife Federations, who have no objection to proper mining, to seek protection of a small fraction of mining lands which are essential to protect wildlife resources.

And that is why we are before you today -- to ensure that Congress' goal to protect wildlife and allow mining is carried out in the crucial case now before you. A case that pits critical habitat for wildlife against another coal mine for which your own document acknowledges there is no present market (PED V - 4). (In fact leased coal sites nearby and nearly identical to Red Rim lay unmined for want of a market.)

Congress' intent to protect critical habitat is succinctly summarized in one regulation, BLM's criterion 15, which is to be used in the BLM planning process in designating federal lands as unsuitable for coal mining. Criterion 15 provides that:

> Criterion Number 15. Federal lands which the surface management agency and the state jointly agree are fish and wildlife habitat for resident species of high interest to the state and which are essential for maintaining these priority wildlife species shall be considered unsuitable. Examples of such lands which serve a critical function for the species involved include:
>
> ...
>
> (ii) Winter ranges most critical for deer, antelope, and elk;...

The petition we bring before you today falls squarely within the ambit of that criterion. The lands we seek to protect with our petition are not ordinary wildlife habitat. Rather they provide vital, critical, and essential habitat for pronghorn, which this map (Exhibit 1) all too clearly indicates is vanishing.

Indeed, Red Rim winter habitat is so essential to pronghorn from a large region in Wyoming, that your failure to grant our petition would put a yellow "vanished" spot in the midst of the remaining pronghorn habitat.

But to have Red Rim designated as unsuitable requires more than my making a speech. The Surface Mining Act requires that Red Rim be designated unsuitable for surface coal mining if the reclamation required by the Act is not feasible.

For you to determine that reclamation is feasible, and deny our petition, the statute requires that you be able to make three affirmative statements:

1. That after mining Red Rim can be reclaimed to its existing use as critical wildlife habitat; or

2. That if it cannot be restored to its existing use, it can be reclaimed to a "higher and better" use; and

3. That such a proposed "higher and better" use is consistent with State land use plans.

Before our panel of experts address the first two necessary statements, I would point out that a post-mining use of Red Rim, other than for critical winter range, is at variance with a State Plan, the 1984 Strategic Plan for the Comprehensive Management of Wildlife in Wyoming released by the Wyoming Game and Fish Department (WG&F) in 1984, which at page 16 and in other documents establishes that Red Rim has been designated by WG&F as critical winter range for pronghorn.

Given this state designation, SMCRA §515(b)(2) and 30 CFR §816.133 make it clear that a post-mining use of Red Rim that does not provide for critical winter range would be an unacceptable post-mining use. Simply put, it means that since Red Rim is designated as critical winter range in a State Management Plan, federal law and regulations preclude any alternative post-mining use, regardless of whether it is higher and better, if that use is inconsistent with the Plan.

Finally I note that under both Federal and State law, as the regulatory authorities you have the discretion to designate Red Rim unsuitable because of the effect mining would have on state land use plans or on fragile areas, even if you were to find that the Red Rim lands could be reclaimed to their existing use as wildlife habitat. We believe the evidence commands your mandatory designation of Red Rim as unsuitable, and also compels that you would so designate it under your discretionary powers.

At this point I would ask Drs. Alldredge, Crocker and Bunin to introduce themselves and provide you with data to establish that reclamation on Red Rim could meet neither the standards of the Wyoming statutes nor of the federal surface mining act. Thank you.

BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL

AND THE UNITED STATES DEPARTMENT OF INTERIOR,

OFFICE OF SURFACE MINING

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|---|---|
| IN THE MATTER OF THE PETITION TO DESIGNATE A 20,480 ACRE TRACT KNOWN AS "RED RIM," AS UNSUITABLE FOR SURFACE COAL MINING OPERATIONS | ) |

TESTIMONY OF DR. A. WILLIAM ALLDREDGE
BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL
AND THE FEDERAL OFFICE OF SURFACE MINING, RAWLINS, WYOMING,
23 JANUARY 1985



I. INTRODUCTION AND CREDENTIALS

I am Bill Alldredge, a tenured, associate professor of wildlife biology from the Department of Fishery and Wildlife Biology at Colorado State University, Fort Collins, CO. In that employment, I teach courses in ecology, big game management and integrated resource management and conduct extensive research work on big game energetics, habitat use and population dynamics. My academic training includes a doctorate degree in earth resources, a master of science degree in radiation ecology, and a bachelor of science degree in wildlife biology. I am author or co-author of 16 peer-reviewed publications and over 20 additional scientific wildlife related publications. Four of these publications have dealt directly with pronghorn antelope in Wyoming and an additional 6 publications on pronghorn are currently in preparation. I have served as a wildlife consultant for numerous energy development companies, and have been involved in environmental impact and wildlife studies in Colorado, Wyoming, and Utah since 1972.

Specific work in Wyoming includes an environmental impact analysis study for natural gas development in the Green River Basin, 1972-1974, wildlife inventory and environmental impact analysis for a uranium mine in the Red Desert, 1975-1979, and an ongoing investigation that began in 1979 on pronghorn ecology in Wyoming's Great Divide Basin.

II. SPECIFIC FAMILIARITY - RED RIM AND RELATED WILDLIFE ISSUES

In 1979, when initial investigations were beginning on pronghorn on the Red Rim site, we initiated an investigation on pronghorn ecology in the Great Divide Basin. Objectives of this study included: (1) determination of pronghorn distributions, migration and habitat use patterns, and (2) documentation of impacts of a developing uranium mine on pronghorn populations. The southern boundary of our study area and the northern boundary of the Red Rim study area is Interstate Highway 80.

Because of study area juxtaposition and commonality of goals, we cooperated with the University of Wyoming, the Wyoming Game and Fish, and the U.S. BLM in design and execution of both studies. Interaction with personnel from the above groups occurred informally several times a month and formally at least once each year throughout the Red Rim investigation. Since the termination of that sudy, I have remained in close contact wih personnel from the U.S. BLM and Wyoming Game and Fish on the Red Rim issue, have read all documents and reports pertinent to the issue and believe that I have excellent command of the issues and scientific data related to the Red Rim situation.

I view my purpose here to present an objective, scientific evaluation of the data pertinent to pronghorn ecology and Red Rim, to interpret these data in light of my considerable experience with the subject matter and present my expert judgment as to why I believe that the Red Rim winter range habitat is critical to the survival of the pronghorn antelope population that uses the area.

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III. OUTLINE-OVERVIEW OF TESTIMONY

Please allow me to provide an overview of my testimony.

A. Pertinent Biology of Pronghorn

In order to understand why the Red Rim Winter Range is critical to the survival of pronghorn that use it, it is vital that we first understand some of the unique aspects of pronghorn biology.

B. Uniqueness of Sagebrush

J { Sagebrush constitutes over 96% of the winter diet of pronghorn in the Great Divide Basin, therefore, one must understand something about sagebrush as it relates to providing energetic needs of pronghorn in winter.

J As stated in section IIA, browse species, particularly Wyoming big sagebrush, are vital to the maintenance of pronghorn through the winter. Sundstrom and others (1973) showed that, during the winter, the proportion of browse in pronghorn diets ranged from 90 to 100 percent. Given this fact, and data presented by RME (comment No. 111AA) to the effect that, during a 2-year period, while 92 percent of the winter diet of pronghorn inhabiting the Red Desert of the Great Divide Basin was shrubs, only 69 percent was sagebrush, your estimate of the proportion of sagebrush in the pronghorn winter diet appears very high.

C. Features of Winter Habitats Selected by Pronghorn

Habitat provides more than food for an organism. Winter habitats of pronghorn afford a readily available source of digestible energy and protein and also protection from weather.

D. Combination of Pronghorn Needs, Sagebrush Abundance, and Special Topography Make Red Rim Unique

Considering the information on pronghorn, sagebrush, Red Rim topography and pronghorn use data we can readily demonstrate why Red Rim is a critical wintering habitat for the pronghorn that use it.

E. Problems Associated with Mitigation Scenarios

Because of facts associatged with A, B, C and D above, loss of the Red Rim critical winter range cannot be mitigated.

F. Consequences of Failure to Protect Red Rim Critical Winter Range

Failure to protect the Red Rim critical winter range from destruction will result in commensurate losses in the area's pronghorn population.

G. Conclusion



IV. PERTINENT BIOLOGY OF PRONGHORN

Pronghorn antelope are unique to North America and wild, free-ranging populations are found nowhere else in the world. Significant reductions have occurred in historical pronghorn ranges, and today approximately 70% of the world's remaining pronghorn reside in Wyoming. Pronghorn are considered a state-important species and are managed as a game mammal in Wyoming. In 1983 over 111,000 people hunted pronhghorn in Wyoming (Wyo. Game and Fish, personal communication)

Pronghorn survival is predicated on, among other things, their ability to move in an unrestricted fashion to important seasonal ranges, and the opportunity to move, as necessitated by snow accumulation and weather patterns, in unrestricted fashion around these ranges. A major impact of modern people has been to reduce these ranges and restrict movements. Today we generally find pronghorn residing on abundant summer ranges and

moving to noticeable smaller ranges in winter. Red Rim is so critical to the survival of local populations of pronghorn that it has been designated as a critical winter range for a portion (30% in severe winters) of the pronghorn residing in the Baggs Herd Unit.

Stochastic, severe winter weather events are probably a significant factor influencing pronghorn populations. Winter mortality not only directly reduces populations, it also reduces the birth rate by causing fetal loss in nutritionally stressed pronghorn females. Our data indicate that within 4 to 5 weeks after the onset of severe winter of 1983-84, over 90% of all deceased pronghorn we examined had mummified fetuses. Other investigators report similar results (Barrett 1982).

In order to survive during severe winters, pronghorn must have free access to winter areas that afford two essential factors: (1) high quality food; and (2) protection from unrelenting cold and snow. On Red Rim, high quality food is provided by sagebrush, which comprises over 96% of pronghorn diets during winter in the Great Divide Basin (Fig. 10) and affords a diet high in digestibility, energy and protein. (Table 1, 2 and 3) During severe winters pronghorn distributions in the Great Divide Basin are intimately linked to areas where sagebrush is available. Uplifted topography and tall stands of sagebrush such as found on Red Rim afford pronghorn protection from winter weather.

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V. UNIQUENESS OF SAGEBRUSH

As indicated in Table 1, 2, and 3 and Fig. 10, sagebrush is high in digestibility, and has a good crude protein content. A unique feature of sagebrush, however, is that it contains monoterpinoids, chemical compounds that inhibit digestion in ruminant animals. Recent work (Hobbs et al. 1984, Welch, personal communication) has shown that different stands of sagebrush vary considerably in their monoterpinoid content and this variation directly affects animals which utilize a particular sagebrush stand. Deer, rabbits and sage grouse show definite affinity for specific stands of sagebrush. Analysis of these preferred stands indicates that they are low in terpinoid content and thus low in digestive inhibition.

K { In my opinion it is not unreasonable to believe that pronghorn also select for stand of sagebrush that are low in monoterpinoid content. Thus, when we consider reclamation on pronghorn winter ranges, we cannot merely be concerned with

K See response to comment No. IIIAF.

TABLE 1:
Percentage of Plantings Occurring in Pronghorn Feces Seasonally, Red Desert, Wyoming.[1]

| Forage Class | SEASON Spring | Summer | Winter |
|---|---|---|---|
| | 2.0 | 2.5 | 1.0 |
| Shrubs (excluding sage) | 5.0 | 10.5 | 1.0 |
| Forbs | 3.5 | 16.0 | 1.5 |
| Sagebrush | 89.5 | 71.0 | 96.5 |

[1] Unpublished data from Alldredge and Debinger

TABLE 2:
Protein and Digestibility for Wyoming Big Sagebrush Based on Data from Sundstrom and Alldredge.

| Forage Class | %Protein Alldredge | Sundstrom | % Digestibility Alldredge | Sundstrom |
|---|---|---|---|---|
| Shrubs | 12.1 | 9.5 | 45.2 | 40.3 |
| Grass | 13.1 | 4.4 | 55.4 | 48.7 |
| Forbs | 10.3 | ND | 34.0 | ND |
| Sagebrush | 12.2 | 12.0 | 49.5 | 81 |

TABLE 3.
Pronghorn Population Data
Baggs Herd Unit and Red Rim in Winter[A]

| Year | Number of Pronghorn: Baggs Herd Unit[B] Population | Red Rim Winter Population | %Red Rim Utilized |
|---|---|---|---|
| 1978 | 10,500 | 1,000-2,420 | 10-23 |
| 1979 | 11,430 | 1,000-1,870 | 9-16 |
| 1980 | 11,940 | 740-1,190 | 6-10 |
| 1981 | 12,370 | 1,150-1,640 | 9-13 |
| 1982 | 11,690 | 2,073 | 18 |
| 1983 | 9.960 | 3,000[C] | 30 |
| 1984 | 4,920 | | |

A Data from U.S. BLM, Wyoming Game and Fish Department and Irwin et al.

B Data are post-hunt figures from computer simulation updated 6-26-84.

C This count was made in late November and may underestimate actual usebecause pronghorn were unable to gain acscess to Red Rim because of an existing fence.

putting back any kind of sagebrush, but we must put back sagebrush that is highly digestible, high in protein and energy, and low in monoterpinoid content. On winter ranges in Wyoming, this requires replacement of the sagesbrush that existed on the site prior to disturbance.

## VI. FEATURES OF WINTER HABITAT SELECTED BY PRONGHORN

Although the scientific literature does not abound with studies on pronghorn, those that do exist, the site specific work of Irwin et al. on Red Rim and our work in the adjacent Red Desert, indicate that pronghorn uses of winter habitats is primarily based on winter weather patterns. With the onset of winter, some pronghorn immediately move to traditional winter ranges like Red Rim. As winter severity continues, additional animals concentrate in Red Rim and other traditional wintering areas. Use patterns of these areas also varies with weather severity, winter weather and available forage and cover.

The habitats selected by pronghorn during typical and severe winters in western Wyoming are snowfree or low snow accumulation areas where sagebrush is readily available in juxtaposition to some type of cover that affords protection from weather. In addition to exposing vegetation for browse, shallow snow depths further reduce the energy expenditures of pronghorn moving about in habitats. Our measurements indicate that sagebrush cover on pronghorn winter ranges is 35 to 40 percent.

It goes without saying that minimal disturbance during winter enhances energy conservation and subsequent survival for pronghorn. Our observations of marked inidividuals during the severe winter of 1983-1984 indicated that pronghorn that were able to attain habitats where snow accumulation was minimal, disturbance was non-existent and sagebrush was available, had a higher survival rate than those that did not. Generally these areas were uplifted, broken terrain similar to that found on Red Rim.

## VII. SITE SPECIFIC CHARACTERISTICS OF RED RIM

Red Rim is one of two distinct areas designated by the Wyoming Game and Fish Department as critical winter range in the Baggs Herd Unit. Approximately 60 - 75% of Red Rim's winter range lies within the proposed area that could be disturbed by coal mining. The "critical" designation implies that these habitats are vital to the survival and growth of pronghorn populations using them.

Population data for the Baggs Herds Unit and Red Rim wintering complex are presented in Table 3. These data were obtained from aerial census techniques commonly used by wildlife biologists and more specifically were reviewed and approved by BLM personnel for use locally. Herd unit population sizes were calculated using accepted computer simulation algorithms. This particular technique is heavily used in both Colorado and Wyoming. In my opinion data in Table 3 are quite reliable for purposes of this work.

The Draft Petition Evaluation Document/Environmental Impact Statement (PED/EIS) makes much of the population objective for the Baggs Herds Unit as endorsed by the State of Wyoming--that objective is 7200 pronghorn. The Baggs Habitat Management Plan developed by the U.S. Bureau of Land Management also supports this objective by committing the BLM to provide forage for a pronghorn population of 7200 animals.

L

However, the herd unit objective is based on political as well as biological considerations and is not synonomous with carrying capacity. Prior to the harsh winter of 1983-1984 liberal hunting seasons were being conducted by the Wyoming Game and Fish Department to reduce populations to objective levels. Reduction of pronghorn populations by recreational hunting in the Baggs Herd Unit is somewhat hampered by due to restricted access because of private landownership. Nonetheless, conditions associated with the winter of 1983-1984 and the 1984 hunting season reduced the Baggs Herd Unit pronghorn population to approximately 5000 animals.

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The uniqueness of Red Rim as a critical winter range for pronghorn lies in a complex of factors that likely act in a synergistic fashion. The uplifted terrain on Red Rim results in an interaction of wind and topography that influences snow, and ultimately moisture distribution. This interaction not only creates snowfree areas during most winters, but results in a mosaic of vegetation patterns in unique juxtaposition that afforts pronghorn with both cover and foraging sites with good interspersion. The habitat afforded by Red Rim is not duplicated across the northern end of the Baggs Herd Unit.

Because the habitats afforded by Red Rim are not duplicated to any extent in the northern end of the Baggs Herd Unit, it is unreasonable to expect that pronghorn utilizing Red Rim during winter could find other suitable habitats if their use of Red Rim was precluded. In fact, pronghorn that attempted to survive winter on a few satellite areas during the winter of 1983-84 experienced almost total mortality. During most winters a belt

L To take account of pronghorn mortality during the winter of 1983-84, the text has been revised. Also see responses to comment Nos. 6C, 6K, and 6T.

of deep snow surrounds Red Rim and severely restricts any egress of pronghorn on Red Rim. Irwin, et al. reported that a few biotelemetered pronghorn in their study did move from the extreme southern portion of the Red Rim critical winter area to the Muddy Creek winter area in a very mild winter. When their movements are not restricted by obstacles (fences, deep snow etc.) some pronghorn typically illustrate extended movement patterns.

In addition to their inability to migrate to other critical winter ranges during severe winters, pronghorn also illustrate a strong affinity for Red Rim during winter as indicated by data in Table 3 and observed movement data. Regardless of winter severity, some pronghorn begin concentrating in the Red Rim area by late November, and as the winter becomes more severe pronghorn concentrate in the area. This affinity suggests that the Red Rim range effectively meets pronghorn winter habitat needs. It also supports speculation that the specific sagebrush on Red Rim must meet winter dietary needs of pronghorn.

Specific pronghorn use patterns of the Red Rim winter range vary with winter severity. Data from a study funded by Rocky Mountain Energy Company and the BLM support the contention that Red Rim is important even during mild winters. Tragically, that study was not funded at an adequate level or for a long enough period of time so that conclusive interpretations of use patterns could be made. Fortunately, we can add to Irwin et al. data collected by the Wyoming Game and Fish Department and the BLM. These data also substantiate the importance of the Red Rim winter range and indicate that during severe winters the majority of use occurs on the upliifted terrain of the Rim itself. Irwin et al. suggest that a large number of pronghorn were frequently observed in the grease-wood-riparian areas along Separation Creek. This distribution was likely influenced by pronghorn using a free-water source in the mild winter of 1981-1982 and using greasewood as cover in more mild winters.

Greasewood certainly does not afford pronghorn with good forage and occurs only in very small percentages in dietary analysis. We, too, have observed pronghorn using greasewood sporadically as cover during winter but do not consider it alone to provide good winter habitat. Time of day when observations are made also influence observed use patterns.

Pronghorn are herding animals that continually move about their ranges in winter. Movement is most likely associated with travel to and from resting and foraging areas, the availability of which varies with wind, storms, and snow accumulation

M patterns. These factors not only confound evaluation of use patterns, but indicate that complete winter ranges should remain available to pronghorn. While one microsite area might appear more valuable than another at a specific point in time, it is the entire winter range complex that is necessary for survival. The interspersion of foraging and cover areas at different times during winter is essential.

M Your conclusion that different portions of the Red Rim critical winter range may be more valuable to pronghorn at different times, but that the entire critical winter range is necessary to pronghorn survival during the winter, is apparently based on the Red Rim site-specific pronghorn study conducted by Irwin and others (1984). See response to comment No. 45A.

Further support of Red Rim as an extremely valuable winter habitat is found in a master of science thesis by Cook (Univ. of Wyo.) where the U.S. Fish and Wildlife Habitat Suitability Index Procedure was applied to pronghorn ranges in Colorado and Wyoming. This procedure is widely used by state and federal management agencies nationally and quantitatively ranks habitats. The results of the above work indicated that Red Rim was the best area for pronghorn.

Based on the above information and my personal experience in the area, I believe that the Red Rim critical winter range is vital to the survival of pronghorn using that area. Assuming the population is kept at objective levels, given the high frequency of severe winters, this range is vital for the long term survival of approximately 2100 pronghorn.

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VIII. MITIGATION OF WINTER RANGE LOSS

N Although it has been suggested that mitigation of impacts could alleviate the consequences faced by antelope if Red Rim were mined, it is dubious that mitigation could be invoked to compensate for loss of Red Rim winter habitats. Because of snow conditions that generally exist between Red Rim and the Muddy Creek winter range to the South, it is doubtful that many pronghorn could move to this alternative winter area if forced away from Red Rim. This was proven during winter 1983-84. In addition, because of range deterioration resulting from heavy livestock use the Muddy Creek winter range could likely not support an additional 2000 or more wintering pronghorn. Habitat condition at Muddy Creek might be improved over time if livestock use was greatly reduced. No other potential winter areas exist in the unit that could support this number of pronghorn.

N See response to comment No. 100F.

O It has been suggested that reduction of some spring-summer cattle use on Red Rim would make more forage available for pronghorn in winter. This preposterous suggestion is infeasible because there is almost no dietary overlap between cattle spring-summer diets and pronghorn winter diets. Reduction in

O See responses to comment Nos. 100G and 112A. Also see comment No. 111Z.

cattle spring-summer use would increase the amount of grass left on ranges but this would not benefit pronghorn that rely on 95% sagebrush in winter.

P

Winter feeding of pronghorn has been suggested and even attempted in some areas, but this option has largely been a failure. Because of their mobility, pronghorn are difficult to concentrate at specific feeding sites. Feeding of pronghorn would have to be initiated early in winter every year because of the limited fat and lean body reserves of these animals. Concentrating pronghorn on feeding area, if it can be done, increases the incidence of predation and potentially of disease. Lastly, feeding is a costly endeavor. During the winter of 1983-1984, Colorado spent an average of $175 per deer saved.

P

Importing feed onto the Red Rim site to sustain pronghorn during the winter is a poor substitute for managing their habitat properly and should be done only during uncontrollable emergencies. Importing feed is not an alternative discussed under any reclamation scenario.

Q

Given the unique attributes of Red Rim on which pronghorn depend, given the inability of these antelope to use alternative winter ranges, and given the inability to substitute for the loss of Red Rim's unique vegetative and topographical features, the only way to save the Red Rim antelope herd would be reclaim mined land to its pre-mining condition. In order to reclaim Red Rim to pre-mining conditions as pronghorn winter range, the landscape would need to be returned to pre-mining topography, sagebrush cover would need to be reestablished at 35-40%, and sagebrush of high digestibility, high energy and protein content, and low monoterpenoid content would need to be planted. Quite likely this would mean using plants and seed from sagebrush currently on Red Rim. The probability and feasibility of this endeavor will be addressed by Dr. Bunin.

Q

If Red Rim were mined and reclaimed to a lesser than premining carrying capacity for pronghorn, that portion of the Baggs Herd browsing Red Rim would be affected over the long term but would not be exterminated. It is conceivable that the topography of the Red Rim area could be restored to a condition different from its premining condition without substantially reducing its ability to meet pronghorn needs. See response to comment No. 2D. See response to comment No. 100E regarding the density at which shrubs should be replaced. We agree that revegetating with sagebrush plants and seeds from Red Rim itself would be advisable, because they would be adapted to the conditions on Red Rim and would likely be most suited to the pronghorn forage needs.

IX. CONSEQUENCES OF LOSING RED RIM CRITICAL WINTER RANGE

Because the area proposed for mining covers approximately 60 - 75% of the Red Rim Critical Winter Range, mining of this area will result in a reduction of Baggs Herd Unit pronghorn population. While we cannot calculate the exact number of pronghorn that would be reduced from this loss of habitat, our best estimate is 1600-2000 animals would be lost. This estimation is based on my opinion that the loss of this habitat cannot be directly mitigated and that reclamation as Dr. Bunin will discuss, is unlikely to occur.

I have also assumed that losses are in direct proportion to habitat loss. This is not unreasonable for large scale reductions in critical wintering habitats for pronghorn. While some claim that pronghorn habituate to some extent to mining

activities, most existing mines from which these data are taken are not on critical wintering habitats. Instead, they occur in areas of ample summer or transititonal ranges where forage and cover are not limited. Unlike these situations, reduction of limited winter habitats as on Red Rim implies direct reduction of associated populations.

The calculations I have made represent the most logical and realistic approach because I have used the herd unit population objectives instead of actual counts. The figure of 30% population use of Red Rim is derived from actual data for severe winters which represents the most "probable case" when considering winter ranges. Although the frequency of occurrence for severe winters is an unknown, data indicate that these occur at approximately 6 to 8 year intervals. Calculations for population reductions should be based on use data for harsh winters when they occur with such relatively high frequency. It would be ludicrous to base calculations of population reductions on carrying capacity guesses for Red Rim. In the first place, such guesses cannot be substantiated. Second, because of the non-predictable nature of winter weather, carrying capacity is dynamic and never static.

In addition harassment often associated with any environmental alteration would be more severe in winter when energy conservation is at a premium for big game animals and animals could be restricted to remnant habitats on the fringes of mining areas.

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X. CONCLUSION

In conclusion, it is my professional judgment upon reviewing all data pertinent to this issue that:

1. Pronghorn are a species of state importance.

2. Habitats afforded by Red Rim are critical to the survival of the pronghorn using these habitats.

3. Mitigation and reclamation of these habitats is not feasible.

4. Mining of 75% of the critical habitats associated with Red Rim will result in an estimated reduction of 1600 to 2000 pronghorn in the Baggs Herd Unit.

R

Your estimate of the number of pronghorn that would be lost should Red Rim be mined is included in section IVB. Although we were unable to determine, from the assumptions you listed as bases for your estimate, exactly how you calculated that estimate, we have concluded that your figure of 1,600 to 2,000 describes pronghorn mortality for a single severe winter rather than for the entire life of the mine. This figure is much higher than OSM's estimate of 53 to 1,204 pronghorn potentially dying during a severe winter owing to habitat loss resulting from mining. See section IVB for a discussion of OSM's estimates and of the assumptions used in calculating them.

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BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL

AND THE UNITED STATES DEPARTMENT OF INTERIOR,

OFFICE OF SURFACE MINING

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|---|
| IN THE MATTER OF THE PETITION TO DESIGNATE A 20,480 ACRE TRACT KNOWN AS "RED RIM," AS UNSUITABLE FOR SURFACE COAL MINING OPERATIONS |

TESTIMONY OF DR. THOMAS D. CROCKER
BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL
AND THE FEDERAL OFFICE OF SURFACE MINING, RAWLINS, WYOMING,
23 JANUARY 1985

I. Credentials

I am Thomas D. Crocker. Since 1975, I have been Professor of Economics at the University of Wyoming. Prior to 1975, I held Economics faculty appointments at the University of Wisconsin (Milwaukee and Madison) and the University of California (Riverside), and temporary research appointments at the Boalt Hall School of Law (University of California, Berkeley) and Pennsylvania State University. I have an A.B. degree (cum laude) in Economics from Bowdoin College, Brunswick, Maine, and a Ph.D. degree in Agricultural and Resource Economics from the University of Missouri--Columbia. The latter degree was earned in 1967.

My academic research and teaching specialty has always been resource and environmental economics, particularly the development of empirical means to estimate the economic values of nonmarketed environmental goods, and the specification of the efficiency and distributional properties of alternative means to allocate these goods. I have authored or co-authored approximately one hundred refereed publications on these topics and have received nearly $3 million dollars in competitive research grants and contracts to study them. I am a former member of the Science Advisory Board of the U.S. Environmental

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Your comments are apparently intended (1) to establish that pronghorn critical winter range must be restored on Red Rim, because it is the "highest previous use" of the land and is of the "greatest economic or social value to the community area" (quoted excerpts are from Chapter IV, Section 2(a)(1), of the Wyoming DEQ regulations), and (2) to serve as a rebuttal to Taylor Lawrence's intervention petition, which alleges that livestock ranching on Red Rim is of greater economic value than is using the land for wildlife habitat. The first of these points, therefore, relates to the petitioners' allegation that Red Rim must be restored to critical wildlife habitat and that such reclamation is not technologically and economically feasible. As you are aware, Wyoming DEQ declared that petition allegation frivolous on June 2, 1982; Wyoming EQC upheld this decision on January 24, 1985, at the public hearing.

Although OSM did not reject allegation 2 and continued to analyze it, Federal postmining land-use regulations, which apply to the petition as it relates to Federal lands, do not include specific language, comparable to that in the Wyoming DEQ regulations, regarding the greatest economic or social value of a given land use. Rather, 30 CFR 816.133(a) and (b) state only that all disturbed areas shall be restored in a timely manner either to the uses they were capable of supporting before any mining or to higher or better uses. (Note: Through its land-use planning process, BLM has determined (1) that Red Rim is currently a "multiple-use" (including use for wildlife habitat, livestock grazing, and recreation) area and (2) that it should be restored, after mining, to this same wildlife habitat, livestock grazing, and recreation multiple use.)

Thank you for your comment regarding cost/benefit techniques for comparing the value of the Red Rim area for use either as wildlife habitat or for grazing. We do not believe that the results of a cost/benefit analysis would materially contribute to the decision process for this unsuitability petition. We believe that the analysis presented in the PED/EIS is adequate for the purposes of and decisions to made under NEPA and SMCRA. NEPA requires the identification of resources and analysis of resource impacts affected by and resulting from various alternative actions, including the effects on the human and natural environment, and the significance of these effects. Department of the Interior EIS's normally refrain from cost/benefit analyses because of the extreme difficulty in measuring environmental values.

Protection Agency, have served on several committees concerned with environmental issues of the National Academy of Sciences, and have participated in and occasionally chaired temporary advisory panels for USEPA, USDOL, OTA of the U.S. Congress, Environment Canada, Fisheries and Oceans Canada, and other North American governmental bodies. I have testified on three occasions before the U.S. Congress about environmental and resource economic issues. I am listed in Who's Who in Economics and Who's Who in the West.

I have spent some time examing documents submitted in this case purporting to measure the economic value of various activities on Red Rim. However, I have only begun to develop a detailed knowledge of the specifics of the technical ecological and economic issues involving antelope habitat in the Red Rim area. Nevertheless, all issues involving the preservation of natural environments have certain economic features in common. My discussion therefore focuses primarily on these features.

## II. Introduction

The Department of Environmental Quality (DEQ) of the State of Wyoming (1983) requires that "economic and social values" play a role in decisions about mining and post-mining activities on lands within its jurisdiction. Indeed, the DEQ demands that in its post-mining state, the land "... must be suitable for the previous use which was of the greatest economic or social value to the community area, or must have a use which is of more economic or social value than all of the other previous uses."

My testimony inquires into the proper analysis of the relative values of using the Red Rim area south of Rawlins, Wyoming, for pronghorn antelope habitat and/or steer grazing. The statute's mandate that "values" be compared cannot proceed without prior understanding of the relevant economic concepts. My primary emphasis is therefore placed upon the economic meaning of the value concept, and how it can be properly measured. An understanding of how value is properly measured enables one to identify the features of antelope habitat and steer grazing activities that must be considered if a complete assessment of their relative values is to be made. In this process I've also identified some features of these activities that fail to contribute to measurements of the relative values involved. Finally, I've drawn some highly tentative conclusions, conditioned upon very diffuse information about Red

Rim and from extrapolations from similar, but by no means identical, settings.1/

III. Economic Meaning of the Value Concept and How it can be Properly Measured.

There has been considerable effort in this case to demonstrate that steer grazing is of greater economic or social value to the community than the use of Red Rim for critical winter range. Unfortunately, the numbers bandied about in pursuit of this proof are irrelevant to the proper measure of value.

The economic value of a piece of land is determined by the revenues gained from use of the land for that particular purpose, less the costs of production, discounted over time. To consider only the gross income derived from grazing steers gives no measure of economic value, for it looks at only half of the data. If the costs to sustain a steer operation exceed the revenues, then not only would there be no value to the operation, the value would be negative.

Likewise, no meaningful measure of the value of antelope is obtained by looking at monies expended to hunt or view the antelope. That only measures the costs of using the antelope resource without considering the benefits people derive from the antelope.

Perhaps I can illustrate the simple truth of this rule with the following analogy: A young boy and girl, who compete in the homemade lemonade business, discover that they must obtain a permit to sell their lemonade. The regulatory authority will issue only one license, to the young entrepreneur whose lemonade is of the greatest value. The young man asserts his lemonade is the most valuable becuase he sells it for five dollars a glass. The young woman counters that hers is of more value because it costs her six dollars to make a glass. Whose lemonade is more valuable? It's impossible to tell without knowing both the income and the costs each youngster incurs for each glass.

1/ Much of my testimony is predicated upon an understanding of fundamental economics. Although I've tried to lay the necessary basis in my oral testimony, I have attached a written appendix which more thoroughly deals with these basic principles.

Before detailing some of the means by which the above methodology can be applied, I feel I should mention one other point which seems to have been neglected in the assertions regarding the value of a steer raising operation on Red Rim. Aside from their relevance, the data on the value of Mr. Lawrence's steer operation are for income derived with the presence of antelope on his lands. His only assertion as to some increased post-mining value is that he could double the size of his steer operation by planting reclaimed lands to crested wheat.2/ So even if the data before you made any ecomonic sense, it would be important to remember that the pre-mining use is by steers and antelope, while the proposed post-mining would be just for cattle.

IV. Features of Antelope and Steer Grazing Activity that Must be Assessed to Measure their Value.

A. Means of Valuing a Steer Operation.

There exists a convenient means to measure the value of grazing lands used as a steer grazing operation which does not require that the regulatory boards delve into the revenues and costs of such an operation. The time stream of net returns (revenues minus costs) a steer grazing operation can expect to obtain are determined only by current and future beef production. The expected time stream of these net returns, along with the market rate of discount, determines the price for which their land can be sold. Thus, for example, if a given piece of grazing land can be sold for $150 an acre, this sum represents the markets' judgment of the stream of discounted net returns the land in question can offer whoever owns it. In effect, the land market has already done the research on the value of the steer grazing operation.

Since the quantity of beef produced on this few thousand acres will influence the market price of beef to no more than a

2/ If planting crested wheat in this area were really profitable, it's difficult to understand why it doesn't seem to be occurring on adjacent private cattle lands.

near-vanishing degree, consumer surplus considerations are irrelevant. While consumers of beef must receive a surplus over and above the prices they pay, this added value does not accrue to any particular pound of beef. The surplus value could be gained by consuming any similar pound of beef produced in any location. No consumer surplus value attaches to a particular unit of an output if there are identical substitutes for the unit available. Price measures of outputs with ready substitutes and areas under demand curves are fully comparable measures of value.

The market price of the grazing land, which is simply the discounted value of the time stream of net returns from beef production that it is expected to generate under the existing legal configuration, therefore represents the economic value of the steer grazing operation. However, because no market exists in which antelope habitat per se is traded, indirect means must be employed to estimate its value.

B. Means of Valuing Antelope Habitat.

The value of antelope resources is given by the sacrifices people are willing to make to have access to them or to have the opportunity to make use of them. The sums they may spend on other goods and services cannot be used either to substitute for this measure or directly to indicate what this measure may be.3/

Although the absence of a market to organize and identify the value of antelope on Red Rim means that the community must rely on non-market allocations (as established by the Fish & Game Department, and, in this case, by the decision the OSM and EQC), this does not in any way mean that such resources are any less economically valuable than other resources or goods that are provided and traded at market-established prices. The difference is only that a market is possible and desired in some cases and is impossible or rejected in others; it is not that one class of goods or the other is economically more valuable because of the circumstances under which it is made available and allocated.

While this has been the source of some confusion, market and non-market or non-pecuniary values are equally economic values as in each case the economic measures of their worth are expressions of the extent to which people would sacrifice other things and other resources for their availability. The conversion of a steer operation to a wildlife habitat for example, can well serve to increase the economic value derived from the resource, even though the cash flow from the sale of beef is not replaced by any cash or commercial transaction associated with the new use. Although gross national product would not increase, the level of economic well-being would be greater. Pecuniary transactions are only a subset of economic value.

Several techniques which have no consistent meaning in terms of economic value have been employed to measure the value of wildlife habitat. I discuss these inappropriate measures, such as the use of expenditure data, in my appendix. At this point, let me turn to methods which can properly approach the measure of antelope value. The two most appropriate techniques are probably the travel cost method and a survey method known as contingent valuation. Although the former is capable only of obtaining a willingness-to-pay measure, its use for valuing

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3/ The difference might be illustrated with a hypothetical example of two equally attractive hunting areas, one located close to a population center and the other at a substantial distance from the center and necessitating considerable expenditures to travel to it. Assuming that there is no premium attached to the more remote site because of the absence of any congestion or crowding, the near site is clearly the more valuable. People need not spend large sums to get to the closer site, thus more will be able to enjoy it. Much of the total value of visiting the remote location, the other hand, will be used up in travel costs reducing the amount that would then be available to pay to use the area.
Although the near site is actually worth far more than the
(Footnote continued on next page)

(Footnote continued from previous page)
other, visitors to the far site may well spend much more on travel than visitors to the near one. Taking the size of such expenditures as a direct measure, or even in index, of the value of the two sites would give the very mistaken impression that the far site was of greater worth.

wildlife habitat has been recognized by the Federal Water Resources Council (1979). Contingent valuation procedures, which can measure both compensation demanded and willingness-to-pay, have frequently been employed in environmental preservation studies sponsored by the U.S. Environmental Protection Agency, e.g., Crocker (forthcoming).

C. Special Issues in Valuing Antelope Habitat

The population dynamics of wildlife, and the frequent quite imperfect understanding of the structure that these sequential features have, introduces valuation issues usually not found with ordinary market goods such as food and clothing.

Irreversibilities. It is well-known (e.g, Dasgupta and Heal (1979)) that if reductions in biological populations or deteriorations in their habitats are great enough, recovery of the original wildlife stock is economically and perhaps technically impossible. The biological stock has been mined, just as coal is mined. Valuations of these irreversible impacts, if they are to be economically correct, must account for the possible loss of future opportunities to enjoy the amenities that the original stock offered. Completeness requires that the foreclosed future options, known and possible, of humans who value the original antelope stock be taken into account. Current actions which burden or deplete future opportunities must be counted as a cost (in economics jargon, a user cost) against the current action. A myopic analysis that considers only the value of the reduction in current visible service flows from the stock of antelope will often underestimate the economic losses of a stock reduction.

Option, Bequest, and Existence Values. Policy arguments for the preservation of natural environments frequently assert that option, bequest, and existence values be included in valuation efforts. Option value is defined as the maximum price an individual would be willing to pay to preserve the option to visit a site even though he is uncertain about whether or not he will ever want to visit it. Bequest value is the willingness to sacrifice current consumption so that one's progeny may have greater wealth. Both option and bequest value have solid and tightly specified analytical foundations in the economic theory of individual choice.4/ If natural environments are regarded as a component of individual wealth, bequest values, as even casual observations of the sacrifices that parents make to ensure the future of their offspring make obvious, can be very substantial. This author, however, is unaware of any technically sound efforts to assess empirically the bequest value for a natural environment.

Existence values, or at least empirical results that purport to represent something called existence values, are another matter. Several empirical studies of "unique" natural environments which label their measures "existence values" can be found, e.g., Schulze, et al. (1983). These estimates of existence values typically exceed the value estimates attributed to actual users of the particular natural environment. For example, Schulze, et al. (1983) estimated that individuals who had never visited the Grand Canyon and had no plans to do so attached a value to atmospheric visibility in the region an order-of-magnitude greater than that attached by actual visitors.

V. Limited Empirical Insights

Antelope Habitat. If any technically acceptable estimates exist of the value of antelope habitat in Wyoming, this author is unaware of them. Some grasp of what might be an upper bound of the valuations of antelope hunters and observers can be obtained from the work of Brookshire, et. al. (1980). In a 1977-78 contingent valuation survey of 108 licensed Wyoming elk hunters' valuations of elk encounters, they found that, on average, $68.52 would have been demanded in compensation for a hunter to be willing to accept a reduction from 1.0 to 0.1 encounters per day of elk hunting. For a reduction from 5.0 to 1.0 encounters, $142.60 would have been demanded; and a reduction from 10.0 to 5.0 encounters required compensation of $207.07. Given that the hunters could have spent this compensation, if actually received, upon anything that can be acquired with money, the Brookshire, et al. (1980) results must be inflated by the change in the consumer price index between 1977-78 and 1984-85.

Steer Grazing. As earlier noted, if steer grazing is the sole use of Red Rim acreages from which their owners can now and in the future collect rents, then the market prices of these acreages will simply be the market's judgment of the discounted value of the stream of net returns (revenues less costs) that can be acquired from steer grazing on these acreages. A

4/ However, Freeman (1984) has shown that the option value attached to natural environments will typically be small and, if the individual's future income is uncertain, can even be negative.

discount rate in perpetuity of, say, 10 percent, and a market price of $150 per acre implies a net annual per acre return of about $15 an acre.

Assuming that the antelope habitat and the steer grazing operations are independent, you could compare the value of these operations using the above information, if you had additional data on antelope densities, encounters, and unit values. But that data does not exist -- it does not exist in the submissions made to you as regulatory agencies, and it does not exist in the documents (the Petition Evaluation Document/Environmental Impact Statement) you have prepared in analyzing the issue before you.

Until you obtain and apply these data, or use other valid economic measures to compare possible pre and post-mining land use values, you are not in a position to make an economic decision as to whether an all steer post-mining land use would be more valuable than the existing uses for antelope critical winter range and steer grazing.

Thank you for your attention.

APPENDIX

I. FUNDAMENTALS

Economic Values and Economic efficiency. Assessments of the net economic benefits of alternative levels of different activities are a means of creating dialogue between the findings of the natural sciences and human valuations. They provide a measure of the socially valuable resources gained and lost from an historical or a contemplated change in environmental states, in circumstances where some exchanges of enviornmental goods and services are involuntary, do not pass through a market, and are therefore not subject to its allocative processes.

Voluntary exchange is the core concept of economic efficiency. The foundation of the concept was originally developed by Pareto (1927) as a tool with which to solve the problem of weighing one person's welfare against that of another. Pareto's strikingly simple criterion states that outcome A is to be preferred to outcome B if, by the affected individuals' own evaluations, no one person's welfare could be enhanced without making someone else worse off. Voluntary exchange clearly fits the criterion, since no one will participate in an exchange unless he expects to be at least as well off as with nonparticipation. Each person is therefore presumed to be the best, though not necessarily a perfect, judge of his own welfare. Thus the net economic benefits assessment problem for a change in environmental states is to ascertain the income which the gainers and losers from the change would consider to be equivalent to their respective welfare gains and losses, given their initial wealth. If the income-equivalent gains outweigh the income-equivalent losses, the change is said to be economically efficient.

If efficient markets can be organized and all values, such as impacts on third parties, are taken into account by those involved in exchanges or sales, then the economic value of the last unit of the goods or services sold will be measured by the market price of the transaction. Many goods and services, including rights to the use of various natural resources, are sold in market exchanges and the prices which are established more or less balance the demands of people desiring more of the supplies with those of people willing to part with their holdings. As those prices ensure a match between quantities demanded and quantities supplied, they determine the value of an added (marginal) unit of the good to those buying and those supplying. These prices which cause quantities demanded and supplied to be matched do not, however, represent the value of all units of the good that are exchanged. Except for the last unit exchanged, the value of all other units is represented by the sum of producer quasi-rents and consumer surpluses.

Producer Quasi-Rent and Consumer Surplus. Consider a landowner who can produce either antelope, steers, or both on his land. Over some set of density combinations of the two species, the production and maintenance of one species interferes with the production and maintenance of the other.[5/] He raises the steers for beef and sells them in a competitive market; the antelope are not sold as such, but, because he is able to control human access to his land and to keep the antelope within its boundaries, he sells rights to hunt them and to observe them.[6/] Assume, for simplicity, that the

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5/ In reality there is little grazing conflict between steers and antelope.

6/ In the instant case the checkerboard nature of the land raises serious legal questions about the right to deny access.

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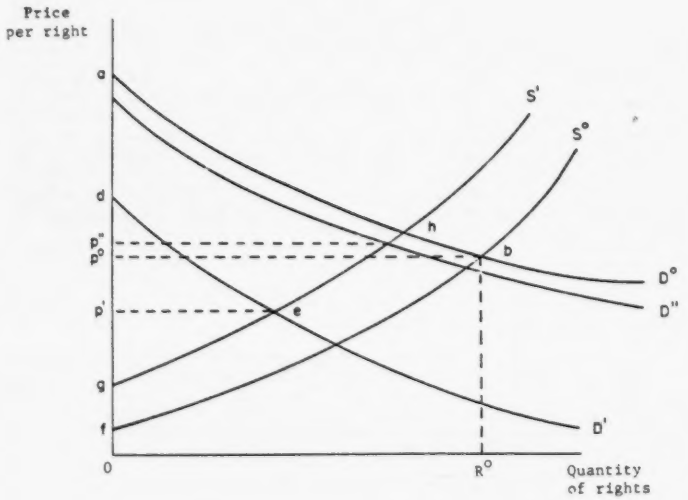
FIGURE A

CHANGES IN PRODUCER'S QUASI-RENT AND CONSUMER'S SURPLUS




number of antelope is strictly proportional to the number of antelope seeking rights. For a given time interval, Figure A depicts the number of antelope rights, $R^{o}$, that he would sell, and the price, $P^{o}$, at which he would sell each right, given that substitute antelope hunting and observation opportunities are available.

The quantity $R^{o}$ of rights in Figure A maximizes the sum of producesr quasi-rents and consumer surpluses attributable to the antelope on the site. Producer quasi-rent is the area $fp^{o}b$, the sum (integral) of the differences between the price, $p^{o}$, the landowner actually receives for providing an antelope right and the minimum price he would have to receive in order to cover his costs of supplying an additional right to seek antelope. These additional costs are given by the curve $S^{o}$, the main component of which is his loss in the profits from beef production that he suffers as he allows more antelope and antelope seekers to use his land. Thus the cost of the antelope to the landowner, and the minimum price he would have to receive in order to be willing to provide rights to seek antelope, is basically the highest net return the owner could obtain by devoting a greater share of his land to beef production (See attached Figure). Clearly the landowner would not sell a quantity of antelope rights greater than $R^{o}$ because the additional losses that he would suffer in beef profits would exceed the additional revenues he could acquire from antelope seeking rights.

Consumer surplus, the area of $P^{o}b$, is the sum (integral) of the differences btween the maximums individuals are willing to commit themselves to pay for antelope seeking rights, as given by the curve labelled $P^{o}$, and what they must pay, $P^{o}$. Antelope seekers' maximum willingness-to-pay is established by what they must spend elsewhere to obtain the same satisfaction as that acquired at the site in question.

In general, the sum of consumer surplus and producer quasi-rent is a measure of the net benefits associated with the landowner's provision of antelope seeking rights. The costs of other activities that provide equal satisfaction set an upper bound to the seeker's maximum willingness-to-pay; the observable net revenues his inputs could earn in beef production set a lower bound on the minimum reward the landowner must receive. Maximum willingness-to-pay represents demand; the minimum necessary reward defines supply.

A Complication. The preceding discussion of the landowner's antelope and steer operations involves a major assumption,

namely that he is easily able to control human access to his land and to keep the antelope within its boundaries. In the case of the Red Rim area, neither of these assumptions is likely to be valid. Antelope seekers can enter his land more or less at will, and, even if the landowner were able to control seeker access, he cannot assure seekers that there will be antelope for them to observe or hunt. In short, he cannot sell antelope seeking rights; to him, the antelope operation offers no returns. If removal of the antelope is costly, he might tolerate their presence, but he will have no incentive to adopt land management practices that help them. He will therefore have a (nonexistant) antelope operation at the origin of Figure A, where the distance Og along the vertical axis represents the total cost of the level of the steer operation that he would choose. Note that his choice is economically inefficient since, over the interval from the origin to the $R^0$ quantity of antelope seeking rights, the willingness of seekers to pay for these rights exceeds the returns that the landowner would have to forego from the steer operation. The technically correct objective, then, of any exercise to assess the economic value of the Red Rim antelope herd is to establish the potential landowner quasi-rents and consumer surpluses associated with various antelope availabilities, so that a relevant public authority may, if it chooses, cause the outcome, $R^0$, which would occur if the landowner were able to sell and easily enforce antelope seeking rights.

The Relevance of Legal Conditions. In spite of the common sense of the approacch to valuation sketched above, it will often yield different values for the same quantity variation, depending on the conditions adopted for the analysis. For example, if one is interested in the value of an antelope habitat, the value that a person will attach to destruction of the habitat can depend on whether one is measuring what the person is willing to pay to prevent the destruction or what the person would have to be paid in order to be willing to accept the destruction. In the latter case, because the person is viewed as holding the legal right to stop the destruction, his revelation of preferences is not limited by his wealth. However, his income does limit what he can do when he must pay someone else.

The Time Element. Figure A and the discussion surrrounding it refer, as earlier noted, to a given time interval. The analytically most convenient time interval is the annual production cycle of the antelope and the steer operations. However, the economic benefits of the antelope and steer operations, and the surface mining activity, are incurred over a number of years rather than entirely within a single year. The technique employed for placing net benefits (consumer surplus plus producer quasi-rents less costs) occurring at different times on a common basis is discounting, a procedure that allows determination of the relative value of having a dollar now rather than later. In formal terms, the "present value" of a net benefits stream (what the benefits are worth right now) is found by multiplying the benefits in each year by a time-dependent weight, $d_A$, and then summing each of the weighted values. Thus:

$$PV = d_0B_0 + d_1B_1 + \ldots + d_nB_n,$$

where PV is present value, $d_t$ (t=1,...,n) are the weights, and the $B_t$ are the net benefits. The $d_t$ have the usual geometric form found in compound interest; that is:

$$d_t = \frac{1}{(1+r)^t}$$

where r is the discount rate.

Inspection of (1) and (2) makes it evident that the present value of a benefits stream is extremely sensitive to the choice of the discount rate, r. High values of r greatly reduce the present values of future benefits, particularly for those benefits that do not accrue until some time far removed from the present. For example, if $100 is expected to be recesived 50 years from now, and if a discount rate of 10 percent is employed, the $100 will be worth only 85 cents right now. Alternatively, the same $100 in 50 years discounted at only 2 percent will be worth $37 right now. Thus, no matter how sophisticated the methods and tests employed to value environmental costs and benefits, and no matter how fine the data, an ill-founded choice of the discount rate can destroy the policy usefulness of the net benefits assessment exercise. Particularly for projects having a lengthy benefits stream, the choice of the discount rate will frequently be more critical than the choice of the method of valuing benefits.

Means of Assessing Antelope Value that have no Economic Meaning. The use of expenditure data has also often been

advocated as a "secondary" benefit of providing hunting opportunities. That is, so the argument goes, while the expenditure figures may or may not provide a direct measure of the value of an antelope resource, they do measure the jobs and incomes that result from having these resources available -- they are additional benefits of the resource.

The problem with such accounting is that if such secondary or associated expenditures benefits are to be credited as part of the gains attributable to this use of the resource, then the expenditures, jobs and incomes that are not realized elsewhere in Wyoming because of the spending that is displaced by this use must be debited as part of the costs of this use of the resource. It is clearly misleading to count only the secondary gains without counting the secondary costs.

In most cases in most circumstances there is little reason to expect any significant difference in the secondary impacts of similar primary gains and outlays. As these would then be expected to almost completely cancel each other out, it is therefore generally advisable to ignore them.



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BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL

AND THE UNITED STATES DEPARTMENT OF INTERIOR,

OFFICE OF SURFACE MINING

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| IN THE MATTER OF THE PETITION TO DESIGNATE A 20,480 ACRE TRACT KNOWN AS "RED RIM," AS UNSUITABLE FOR SURFACE COAL MINING OPERATIONS |

TESTIMONY OF DR. JANE BUNIN
BEFORE THE WYOMING ENVIRONMENTAL QUALITY COUNCIL
AND THE FEDERAL OFFICE OF SURFACE MINING, RAWLINS, WYOMING,
23 JANUARY 1985

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INTRODUCTION AND CREDENTIALS

I am Dr. Jane E. Bunin. I currently work as a consulting plant ecologist based in Boulder, CO. In the past I have taught college level classes in biology, plant ecology and mountain ecosystems. My academic training includes a doctorate in plant ecology received in 1975 from the University of Colorado in Boulder, a masters in biology received in 1968 from Brandeis University in Massachusetts, and a bachelors in genetics received in 1966 from the College of Agriculture at Cornell University in New York. In the course of my training I was the recipient of fiteen different honors, grants or fellowships.

During the last sixteen years, I have worked in the western United States on a variety of projects involving ecological effects of human disturbance on ecosystems. During the last seven years, the majority of my projects have focused on reclamation and vegetation of western lands being mined or disturbed for mineral and energy developments. My clients have

included government, industry and conservation organizations. Most of my projects have been located in Wyoming, Colorado and the neighboring states. Of my publications, four recent, major ones concern the state-of-the-art for reclamation techniques on western surface mined lands. Two of my current projects are: 1) To assist the Office of Technology Assessment of the U.S. Congress in assessing the revegetation aspects of environmental protection under the Federal Coal Management Program in five western states, including Wyoming, and; 2) To assist the Office of Surface Mining with its vegetation responsibilities by providing services as a subcontractor through a Basic Ordering Agreement.

SPECIFIC FAMILIARITY WITH RED RIM

I was asked by the National Wildlife Federation in May, 1983, to study the reclamation potential of the Red Rim tract. Since that time I have studied the voluminous documents for the case, have reviewed the literature for applicable information and have discussed Red Rim with other reclamation biologists. In August, 1983, I visited the Red Rim site. In November, 1983, I met with OSM personnel who were responsible for the first draft of the Red Rim Petition Evaluation Document/Environmental Impact Statement, Scott Fisher and Don Henne.

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OVERVIEW OF TESTIMONY

T I view as my purpose here to present some clear facts and realities concerning the potential of the Red Rim tract to be reclaimed to pronghorn winter habitat after surface mining, to utilize my expertise in western reclamation to evaluate these facts and realities, and to present my conclusion that, given existing knowledge and reclamation know-how, Red Rim is very unlikely to be reclaimable to pronghorn winter range in less than 45 years after mining starts, if at all.

Some of this testimony is taken from the Draft Red Rim Petition Evaluation Document/Environmental Impact Statement (PED). The facts and realities summarized there are also recognized in other documents, such as the District Wildlife Biologist's Report to the BLM (1981). This was Appendix 7 of the original Wildlife Federation petition for unsuitability. Included in my written testimony as Appendices A and B, respectively, are 1984 comments from the U.S. Fish and Wildlife Service and from the Wyoming Game and Fish Department on the PED.

T OSM agrees that, under reclamation scenario 1 (whereby disturbed critical winter range would be reclaimed to closely approach its premining condition), it would take about 45 years (30 to 35 years for mining and 10 to 12 years to reclaim the last parcel of mined land to some level of pronghorn use) to mine and reclaim the entire Red Rim tract. Nevertheless, your statement is misleading, because land on Red Rim would be mined and reclaimed in parcels. Parcels of land that has already been mined would be reclaimed as other parcels of land were being mined. Therefore, at no time would the entire mine area be unreclaimed.

See responses to comment Nos. 2H and 6BK. The PED/EIS acknowledges that the attempt to reestablish the sagebrush-dominated pronghorn critical winter range would be difficult. The uncertainties of and risks to the accomplishment of reclamation are described in response to comment No. 2B and in appendix F.

An outline of my testimony follows.

I. SCENARIO I AND ITS GOALS ARE TO BE ADDRESSED

II. TECHNICAL DIFFICULTIES OF RECLAMATION

- A. Aridity of Red Rim
- B. Reestablishment of big sagebrush is central but questionable
- C. Rebuilding topography is central but questionable
- D. Combination of big sagebrush and steep slopes is crucial - very difficult
- E. Techniques are untested
- F. Evaluation of technical difficulties

III. GREAT EXPENSE OF RECLAMATION

IV. OTHER COSTS AND PROBLEMS

V. REMAINING OBSTACLES/RISKS

- A. Lack of specific knowledge for Red Rim
- B. Drought unpredictable but recurring

VI. CONCLUSIONS



I. SCENARIO I AND ITS GOALS ARE TO BE ADDRESSED

Dr. Alldredge has summarized the biological facts, which show that Red Rim is critical for pronghorn use and that essential features of the pronghorn habitat include which species and variety of big sagebrush are present, how the big sagebrush are distributed and the complex topography of Red Rim.

Because of these biological facts, a reclamation scenario which would intend to restore Red Rim to critical winter antelope habitat is the required approach, i.e., scenario I of the PED. The other reclamation schemes of the PED would fall far from restoring Red Rim to its existing use for antelope. My remarks will therefore address reclamation scenario I.

Reclamation Scenario I aims to reclaim all mined lands on the Red Rim petition area to pronghorn critical winter range. It is one of three scenarios (designated as B1) within the PED's alternative B. which would not designate any of the petition area as unsuitable for surface coal mining. Successful implementation of reclamation Scenario I would restore complex topography as well as approximately one-third of the premining shrub density of Red Rim. It is worth noting that scenario I would go beyond the existing standard Department of Environmental Quality guidelines, since they do not address the critical wildlife habitat. Therefore, it would utilize many new and untested planning/revegetation techniques.

II. TECHNICAL DIFFICULTIES OF RECLAMATION

A. Aridity of Red Rim

If disturbed, Red Rim is too arid to be solely reclaimed by the technically easiest and least expensive methods, that is, involving seeding. The aridity results from low precipitation, low humidity and windiness, which, along with the overall unpredictability of available moisture, makes the success of any reclamation plan questionable. These are the reclamation realities for any site in the semi-arid west that receives less than about 10" of precipitation per year, which Red Rim does.

B. Reestablishment of big sagebrush is central but questionable.

As Dr. Alldredge has indicated, antelope are critically dependent upon the availability of sufficient, nutritionally appropriate Wyoming big sagebrush. Yet the restoration of Wyoming big sagebrush on Red Rim would be extremely difficult.

1. Success very limited by any method

The reestablishment of big sagebrush even on gentle slopes is questionable, although there are various methods that have been and could be tried. Seeding, nursery stock and native transplants would all have substantial drawbacks for use in Scenario I.

The PED concurs with this assessment: "The existing shrub densities...are very high and probably cannot be achieved throughout the landscape irrespective of cost," (PED, IV-46). Success with big sagebrush seeding has been unreliable and usually poor throughout the western surface coal mine regions. Nursery stock and native transplants are expensive and success with the former has been variable. Concerning the latter, one method that could be used to reestablish big sagebrush is transplanting mature plants via a tree-spade. Yet, a representative of Rocky Mountain Energy has already stated that: "The extensive use of this method to reestablish pre-mining big sagebrush densities is not feasible, economically or environmentally" (RME Company Oral Communications, 1983, quoted on page F-8 in the PED).

2. Proposed post-mining shrub density is not known to be achievable

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No information is available to suggest that establishment of shrub densities like those of Scenario I can be achieved on large areas, even on gentle slopes. The minimum big sagebrush density proposed in Scenario I is 2000 plants per acre and a goal of 2500-3000 plants per acre. This is only about 1/3 of the premining big sagebrush density of 7144 per acre (1.7 per square meter or one per 0.6 square meter). Furthermore, maximum shrub densities currently feasible on gentle slopes are about 30% those of Scenario I, or one-tenth of the original.

Exhibit 11 illustrates schematically and approximately what this actually looks like.*/ Please note that the one shrub per six

*/ All shrubs in Exhibit 11 were given the same canopy diameter since there is no reason to assume that big sagebrush reestablished on windswept slopes will do better than the original plants. Furthermore, it is not known whether larger, fewer big sagebrush would recreate pronghorn winter range at premining levels.

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Only a portion of the premining landscape of the petition area contains sagebrush-dominated plant communities. Therefore, it would not be necessary to reestablish the sagebrush vegetation type on the entire petition area under reclamation scenario 1.

The range of plant community types that include the two dominant sagebrush subspecies (Wyoming big sagebrush and basin big sagebrush) have not been identified. Moreover, representative density figures for each of the subpecies within sagebrush-dominated plant communities are not now available owing to the lack of detailed baseline studies. The accuracy of the density measurement the petition cites (7,144 sagebrush plants per acre) has not been established. Density data must be supported by cover, frequency, and vigor data, and all these data must, in turn, be examined in an integrated and systematic fashion, comparing density/distribution patterns with topography, snow depths, soil characteristics, and pronghorn use, to truly characterize the plant communities. The 3,000 plants per acre density level assumed in reclamation scenario 1 is our best professional estimate of the number of plants per acre that would meet most or all of the pronghorn critical winter range needs. See response to comment No. 6AE regarding RME's vegetation study. For further discussion of existing big-sagebrush population densities and of the densitities to be reestablished under reclamation scenario 1, see appendix F. Also see responses to comment Nos. 6BF, 6BZ, 6CB, and 100E.

V square meters currently feasible, which is one-tenth the existing density, includes other shrubs that are far easier to establish than big sagebrush, is not attainable within ten years, is on gentle slopes, and is not economically feasible, according to recent comments of nine mining companies. These are comments that the Wyoming Department of Environmental Quality has received concerning proposed postmining shrub density standards. They are included as Appendix C.

In these comments, one shrub per six square meters, is what was said to be feasible at the nearby Black Butte Mine and is 150% what was said by Rocky Mountain Energy to be still too high for economic reasons. In sum, the shrub densities that Rocky Mountain Energy said are currently workable are fifteen times less than the existing big sagebrush density at Red Rim or about five times less than Scenario I. Again, the RME comment was for gentle slopes and included other shrubs easier to establish than big sagebrush.

V Because pronghorn critical winter ranges have not been proposed for mining in the past, mining companies have not been required to perform baseline inventory studies comparable to those that would be required under reclamation scenario I. OSM has estimated the cost to complete the reclamation effort under reclamation scenario I; these cost estimates are included in section IVC.

3. Big sagebrush growth is slow

W In the arid climate of the Hanna Basin and particularly on the dry, windswept slopes that provide pronghorn winter forage, big sagebrush growth is slow. In these conditions, it is likely for a big sagebrush to reach a height of one foot only after more than twenty years. One foot is slightly less than the average height of the existing big sagebrush on the Red Rim slopes providing pronghorn winter forage. Therefore the minimum time estimate for reestablishment of premining pronghorn winter forage on Red Rim is assumed to be twenty years after reclamation starts. Twenty years also agrees with the estimate given in Rocky Mountain Energy's 1981 report on "Potential Mining Impacts to Wildlife in the Red Rim/China Butte Lease Area."

W The existing vegetation data base for Red Rim is not detailed enough to warrant using it to estimate how long it would take to reclaim the area to its full carrying capacity. All things considered, your 20-year estimate for reclamation to full carrying capacity is well within the range of possible estimates. See response to comment No. 111AE. The PED/EIS states that pronghorn carrying capacity would be partially restored within 10 to 12 years after reclamation begins; it does not speculate when full carrying capacity would be restored. For a discussion of this 10- to 12-year estimate, see response to comment No. 2H.

C. Rebuilding the topography is central but questionable

X As Dr. Alldredge has discussed, a mosaic of microsites is needed by pronghorn to fulfill their winter requirements. However, existing Red Rim slopes that provide winter forage are very steep compared to any reclaimed western surface mine topography. Pronghorn concentrate on the steeper slopes in the 25 to 55% range. Exhibit 12 illustrates how much steeper than the typical postmining slopes are the Red Rim slopes from which the pronghorn obtain most forage in critical winters.

Serious problems of slope stability and soil erosion would occur if the postmining slopes were not revegetated soon after they were constructed. Once soil is lost, it is essentially

X We agree that Red Rim's diverse topography contributes to its value as pronghorn critical winter range. Steep-slope segments are among the several hillslope gradients found at Red Rim. Irwin and others (1983) found no consistent relationship between the gradient of a hillslope and the number of pronghorn using it. However, they did find that pronghorn occupy the steep hillslopes in greater numbers during the harshest weather. It is difficult to discern what motivates pronghorn to occupy a certain part of the landscape during a given weather situation; for this reason, OSM's analysis of potential reclamation success includes one scenario, reclamation scenario I, whereby Red Rim would be reconstructed to a diverse landscape. The success of reclamation under reclamation scenario I would be greatly dependent on the success of revegetation, particularly on the steepest hillslopes. Inasmuch as the steepest hillslope gradients constitute a relatively small proportion of all hillslope segments, the specialized handling required for these slopes would be somewhat limited.

irreplaceable. The PED acknowledges the difficulty of revegetating the Red Rim slopes when it states: "Any attempt to reconstruct such steep slopes would require extremely careful design and management. Revegetating such slopes would be extremely difficult and expensive. Any slopes greater than 20% are difficult and somewhat dangerous for the use of agricultural equipment to be successfully revegetated. In addition, much hand labor would be required to revegetate them."(PED, F-6).

D. Combination of big sagebrush and steep slopes is crucial but very questionable

Reclamation of Red Rim to critical winter antelope habitat is particularly difficult because it must include restoration of both complex topography and big sagebrush communities. The dry, steep slopes providing pronghorn winter forage need to be stabilized quickly. The best condidates for this task are grasses and forbs, which establish relatively easily as compared to shrubs, particularly on windswept, dry slopes. However, grasses and forbs in these conditions easily outcompete big sagebrush. This is acknowledged by the PED: "To reestablish Wyoming big sagebrush communities on these areas would be particularly difficult, while at the same time trying to provide sufficient vegetative cover to stabilize the slopes because limiting competition from grasses and forbs is one of the requirements for big sagebrush establishment." (PED, F-6).

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E. Techniques are untested

Adding to the difficulties of achieving a reclamation scenario such as scenario I is the fact that many of the reclamation methods and concepts that are included in such a scenario have not been tried or fully tested in an integrated manner on any large mined area. The PED makes this admission: "Revegetation to meet critical pronghorn habitat requirements (reclamation scenario I) may be possible, utilizing new and untested planning /revegetation techniques. Considerable risk does exist in fully restoring pronghorn critical winter range." (PED, IV-16).

F. Evaluation of technical difficulties

The conclusions that I draw from these realities concerning the technical feasibility of reclaiming Red Rim to pronghorn critical winter habitat are that the probability of failure approaches 100% in the short term*/ (less than 15 years) and

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*/ The usage here of short and long term agrees with times used in other environmental impact statements.

Y is certainly over 90% in the long term (over about 40 years). Assuming that Red Rim is reclaimable for pronghorn, the time to reclaim it so that it can support premining pronghorn levels is almost certainly over twenty years after reclamation commences and not unlikely to be over 40 years. Assuming a 25 year mine life, it would be a minimum of 45 years and likely over 65 years after mining commences before Red Rim might support premining pronghorn levels.

III. GREAT EXPENSE OF RECLAMATION

Z One certain fact concerning the reclamation of Red Rim under scenario I is that it would be expensive. Exactly how expensive can only be estimated. The estimate in the PED is that under reclamation scenario I, the cost would be over $48,000 per acre. This is a low estimate due to increases in certain costs, e.g. of earth-moving equipment, and due to use of costs from other Hanna Basin mines not recreating complex topography or extensive areas of big sagebrush. Any cost estimate would be highly uncertain due to the use of new and untested techniques.

Z It's worth noting that there are very few companies surface coal mining in the west that spend this amount of money on reclamation. The most money being spent on reclamation is usually one-half to one-third the PED estimate. Furthermore, this estimate does not include the extensive baseline and preparatory studies, the detailed planning and the careful management and monitoring that would be necessary for success (tasks that would not be done for the typical mine). See the following.

IV. OTHER COSTS AND PROBLEMS

Only a brief treatment will be given here concerning the many additional problems that would have to be overcome for successful restoration of Red Rim pronghorn winter range. Appendix F of the PED provides more detail.

Preparatory and baseline studies will need to be carried out for a number of years in order to collect the detailed data necessary to best utilize the soil resource and to effectively plan and execute the reclamation. The existing data, particularly for soils and vegetation, fall far short of what will be required for effective planning. Since it is likely that good soils for reestablishment of big sagebrush are limited, extremely careful soils programs must be implemented.

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Y See responses to comment No. 100T and 100W. The uncertainties of and risks to the accomplishment of reclamation are described in response to comment No. 2B and in appendix F.

Z Section IVC has been revised. We agree that the cost estimates for reclamation scenario I are approximate calculations, because reclamation under that scenario would have to employ new and untested techniques. Some of the potential baseline and/or research-study reclamation costs are addressed in section IVC. Reclamation as proposed under reclamation scenario I would be much more expensive than reclamation currently occurring on a routine basis in Wyoming. However, the most costly topographic and vegetation reclamation under this scenario need not be undertaken over the entire Red Rim tract. Because of their uniform, gently sloping premining topography and the paucity of Wyoming big sagebrush they support, the lower fans and terraces at Red Rim could be reclaimed, even under reclamation scenario I, using methods that are available, approved, and comparatively less expensive. See response to comment No. 100V.

Important questions about soils, vegetation and wildlife that would not be studied in a typical baseline program include:

i What range of soil characteristics is found with each of the plant community types (and with the different varieties of big sagebrush)?

ii. What topographic features are necessary to restore the mosaic of soil moisture that supports the pronghorn winter range? For instance, the PED states: "There are no known data to quantify the exact number and types of topographic features that would be necessary to restore reclaimed lands to a condition equal or superior to the pre-mining condition for wintering pronghorn" (IV - 22).

iii. How can Wyoming big sagebrush, the variety most often found on the steep, windswept slope that provide winter forage, be established?

iv. Another task to be accomplished during the premining research is the collection of big sagebrush seeds from a number of localities on Red Rim. Their use in later revegetation would provide site adaptation as well as nutritional characteristics appropriate for pronghorn (see Dr. Alldredge's testimony concerning the importance of this.)

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The planning process must utilize all the data collected, especially to achieve good use of the existing soils.

AA Careful management would be necessary to allow continued survival of the postmining vegetation. For instance, fencing to exclude pronghorn would be necessary to protect young sagebrush from being eaten. It is likely that at least six years would be required and often more. The required time would depend on the big sagebrush growth rates in different localities, which respond to available moisture, soil characteristics and interactions with other organisms. During this time, the big sagebrush would, of course, be totally unavailable as pronghorn forage.

V. REMAINING OBSTACLES/RISKS

In addition to technical reclamation difficulties (see part II) and even with mine operator commitment to success (see parts III and IV), the risk of reclamation failure is high due to other factors.

AA Fencing would be required to protect revegetation efforts from being overrun by livestock and pronghorn. OSM cannot now determine how long that fencing would have to remain in place. Once a successful lessee has completed research studies, acquired detailed baseline data, and undertaken the early stages of active revegetation, a determination of how long fencing would be necessary could better be made. Short-term climatic variations would alter actual fence-removal timing. Once fencing were removed, the extent to which vegetation, particularly critical shrub species, were browsed would have to be monitored closely and access adjusted accordingly. Fencing would exclude pronghorn from considerable amounts of critical winter range.

A. Lack of specific knowledge for Red Rim

Risk would arise from incomplete knowledge of answers to the types of questions exemplified in part IV. For example, even after the baseline and preparatory studies, we would not understand all the interrelations of shrub density with topography. And as noted before in part II, there would be little or no technical experience with how to restore these specifics to the way they exist at Red Rim.

B. Drought unpredictable but recurring

The PED states that "Lower than normal precipitation could result in partial or complete loss of this planted vegetation, and the revegetation effort would have to be started over" (PED, IV-51). I want to discuss just for a minute the phrase "lower than normal precipitation." Do we really have to be concerned about the chance of lower than normal precipitation?

The answer is very definitely yes. According to weather data from nearby Rawlins, the probability of a drought is on the order of one every six years.

AB What would this mean for reclamation efforts on Red Rim? Even assuming reclamation were entirely feasible, after approximately 10-15 years of mining activity, there would be a substantial acreage of land which would have been disturbed and sequentially revegetated. For another minimum of 30 years, there would still be a significant acreage of vegetation not yet reestablished as the mining and reclamation progressed. The probability of a drought over some 30 years that would endanger recent revegetation efforts is about 500%, or, you would expect five drought years in the period of 30 years. In a drought year, current and possibly recent revegetation efforts would fail due to lack of plant available moisture. Potential subsequent soil erosion due to lack of vegetative cover would be irreversible.

AB The uncertainties of and risks to the accomplishment of reclamation are described in response to comment No. 2B and in appendix F.

VI. CONCLUSIONS

AC My overall conclusion concerning the feasibility of reclaiming Red Rim to critical winter antelope habitat follows: Given existing knowledge and know-how, any well-informed person can state that the probability of failure approaches 100% in the short term and is certainly over 90% in the long term.

AC See responses to comment Nos. 100T, 100W, and 100Y.

1) There are no data from other areas of similar moisture, vegetation, topography and soils that show that the

technology exists to restore an area like Red Rim, particularly the steep slopes and big sagebrush communities. The PED, for example, states that "vegetation patterns, diversity and densities would probably he changed over the long term" (PED, 1).

AD

2) There are no data from similar areas, or even from areas that are technically more tractable and cheaper to reclaim, that reclamation of Red Rim for pronghorn winter range is economically feasible. On the contrary, recent comments by some nine coal companies on postmining shrub densities clearly state that even substantially lower densities than those of Scenario I are not economically feasible even on gentle slopes and even utilizing other shrubs that are far easier to establish.

3) In addition to technical reclamation difficulties and in spite of the mine operator's best intention to make a commitment to succeed, the risk of reclamation failure is substantial because:

a) Existing knowledge would provide scanty information for planning and reestablishing postmining topography and vegetation that would recreate the necesary habitat factors for critical pronghorn winter range.

b) Droughts occur unpredictably and not uncommonly and can cause reclamation to fail.

AE

4) Even if Red Rim were reclaimable for pronghorn, without doubt, the time to reclaim it so that it can support premining winter levels of antelope is definitely not short term (under 15 years after reclamation begins). It is almost certainly over 20 years after reclamation commences and not unlikely to be over 40 years. Assuming a 25 year mine life, it would be a minimum of 45 years and likely over 65 years after mining commences before Red Rim would support premining pronghorn levels, if ever.

AD See responses to comment Nos. 100U and 100Z.

AE See response to comment No. 100T.

APPENDIX A

Comments of the U.S. Fish and Wildlife Service
on the Draft PED

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BUNIN

United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202

March 21, 1984

Jim Bransky
National Wildlife Federation
Natural Resource Clinic
Fleming Law Building, Box 401
Boulder, Colorado 80309

Dear Mr. Bransky:

Per your telephone request of March 20, 1984, I am enclosing a copy of the U.S. Fish and Wildlife Service's comments on the Office of Surface Mining Reclamation and Enforcement's and the Wyoming Department of Environmental Quality's draft Red Rim petition evaluation document/environmental impact statement.

Sincerely,

Charles M. Albrecht
Chief, Environmental Analysis Branch
Western Technical Center

Enclosure

211

United States Department of the Interior
FISH AND WILDLIFE SERVICE

MAILING ADDRESS
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION
134 Union Blvd.
Lakewood, Colorado 80228

IN REPLY REFER TO:

HR

MAR 5 1984

MEMORANDUM

To: Office of Surface Mining, Reclamation and Enforcement, Brooks Towers, 1020 15th Street, Denver, Colorado 80202

From: Assistant Regional Director, Habitat Resources, FWS, Region 6

Subject: Review of Red Rim, Wyoming, Draft Petition Evaluation Document/ Environmental Impact Statement (PED/EIS)

The U.S. Fish and Wildlife Service (FWS) has reviewed the subject document and offers the following comments. These comments have been prepared under the authority of and in accordance with the provisions of the National Environmental Policy Act (NEPA), the Fish and Wildlife Coordination Act, and other authorities mandating Department of the Interior concern for environmental values.

In our view, the draft PED/EIS contains serious deficiencies and does not adequately assess the environmental impacts of the different alternatives.

The main issue discussed in the draft PED/EIS is whether the Red Rim area is suitable for surface coal mining under the Surface Mining Control and Reclamation Act (SMCRA) and if the area can be reclaimed for critical antelope winter range. Since a large portion of the area has been determined by the Wyoming Game and Fish Department as critical antelope winter range, it should be considered unsuitable for mining under Unsuitability Criterion Number 15, unless the surface management agency determines that mining will not have a significant long term impact on antelope.

Of all the alternatives proposed, only alternatives A (designating the area as unsuitable for surface coal mining), B1 (reclaiming the entire area to critical winter range for antelope), and D (unsuitable for surface mining, but allow underground mining) have the capacity to avoid significant long term impact on antelope. All of the other alternatives would result in the long term loss of critical antelope winter range and should not be implemented even though considered in the document.

Of these alternatives, alternative D is dismissed in the document because of the expense of subsurface mining and possible human health and safety problems. Alternative B1 would require reclamation of the entire area to critical winter range for antelope. However, we find no assurance in the document that such reclamation is possible. References, such as the following, point out that successful reclamation of critical winter range on Red Rim is unlikely.

Page xi states, "The technology for long term reestablishment of certain shrubs, such as Wyoming big sagebrush, and other species necessary to the pronghorn during critical winters, is not, at present, entirely defined . . . ." Since this technology does not exist, there is no assurance that reclamation of critical antelope winter range is even possible, much less technologically and economically feasible as required by law.

Page IV-16 states ". . . revegetation to meet critical pronghorn habitat requirements (Reclamation Scenario 1) may be possible, utilizing new and untested planning/revegetation techniques." Reclamation Scenario 1 is thus based on unknown techniques. Stipulating unknown and untested techniques would only assure unknown results. In our opinion, proven techniques for restoration of critical antelope winter range must be known before this Reclamation Scenario can realistically be considered as an alternative.

Page IV-22 states, "There are no known data to quantify the exact number and types of topographic features that would be necessary to restore reclaimed lands to a condition equal or superior to the premine condition for wintering antelope." Without those data, we must assume that the reclaimed lands will not be restored to a condition equal or superior to the premine condition. In our opinion, this would constitute a violation of SMCRA.

Page F-4 states, "Seeding and plant establishment is inherently uncertain with the low levels of precipitation on this petition area." This statement acknowledges that the potential for restoring the premine environment for critical antelope winter range is at best "uncertain."

Page F-8 states, "Transplanting big sagebrush plants into minesoils suited to their development could have real benefits and would be essential to accomplishment of Reclamation Scenario 1." However, the previous sentence points out that "The extensive use of this method to establish premining big sagebrush densities is not feasible economically or environmentally." Since this is the only technique that has been proven to have any success for establishing big sagebrush, and this technique is not feasible, we must conclude that Reclamation Scenario 1 is technologically infeasible.

We feel that the reclamation costs estimated for Red Rim in Table IV-5 and Table IV-6 represent only a minimum estimate for revegetation and grossly underestimate the cost of reclamation to critical antelope winter range as proposed under Reclamation Scenario 1. Using reclamation costs incurred by Seminoe No. 1 and No. 2 mines for comparison purposes is not realistic since these mines are not reclaiming critical winter range nor creating the shrub densities or topographic diversity that would be required under Scenario 1. To determine if Reclamation Scenario 1 is economically feasible, the costs of the following activities noted on pages F-3 to F-8 would have to be added to the costs in Tables IV-5 and IV-6.

"Cover, frequency, and production data would have to be acquired by species for each of the existing plant communities established."

" . . . production data by community type would have to be developed for a minimum of 2 years prior to disturbance of the site."

"Very detailed soil resource inventory, analysis, and evaluation are critical."

Quantitative evaluation of the statistical reliability of the inventory map should be made by an independent organization or agency."

"Overburden sampling should be sufficiently intense that mapping of the strata having a relatively narrow range of physical or chemical properties can be accomplished . . . ."

"Selective handling of overburden materials is necessary . . . ."

"Analyze the soil and vegetation inventory information to determine the range of soil characteristics associated with each of the plant community types . . . ."

"A detailed literature search to develop amplitudes of soil adaptability . . . would be required and would have to be integrated with a thorough evaluation of the soil and vegetation data collected . . . ."

"At a minimum, the following reclaimed communities should be developed . . . ."

"Topsoil and subsoil materials . . . would have to be selectively removed . . . and stored separately."

"A detailed study and evaluation of the premine topography . . . ."

"Construction of snow accumulative pockets in the topography would be expensive . . . ."

"Detailed geomorphic studies would have to be conducted . . . ."

We believe the PED/EIS should include a detailed analysis of all reclamation costs in order to determine if it is economically feasible to mine Red Rim under Scenario 1.

Until it can be shown that Reclamation Scenario 1 is feasible, alternative B1 cannot be realistically considered as a viable alternative. This leaves alternative A as the only alternative that would avoid significant long term impacts on antelope. Therefore, until it can be shown that reclamation of critical antelope winter range is technologically and economically feasible, we recommend that this range be designated as unsuitable for mining.

Several other issues also are of concern to the U.S. Fish and Wildlife Service (FWS). Page xi states, "Reclaimed lands would support some level of pronghorn use 10 to 12 years after planting." This statement should be clarified. What is some level? Would it include winter use during critical weather conditions? Considering the statements on page F-8 that "The pronghorn, rabbit, and deer populations would pose an immediate threat to the survival of the shrub species established . . ." and that " . . . feral stock would have to be excluded from the revegetating areas until the shrub species have become fully established, roughly estimated at approximately 10 years, but perhaps as long as 12 to 25 years, to avoid damage to the developing plant communities" it seems likely that reclaimed lands would be of little use to antelope for at least 10 years and possibly as long as 25 years. We know of no reclamation that has established a mature shrub community (that would be required during a critical winter) in the 10 to 12 year period hypothesized on page F-8.

Page I-6 states that impacts "during the life of mining and reclamation (assumed to be about 40 to 45 years)" are considered "short term." We suggest that 10 to 15 years would be more appropriately called "short term," and we recommend the final PED/EIS utilize this time frame for analysis purposes.

Page II-1 states that raptors are species of particular concern in the Red Rim area and that 11 golden eagle, 23 ferruginous hawk, and 8 prairie falcon nests occur on or adjacent to the proposed lease. All three species are Migratory Birds of High Federal Interest (MBHFI) and warrant consideration under Unsuitability Criteria Numbers 11, 13, and 14. Yet there is no discussion of the potential impacts to these species in the draft PED/EIS. Page II-3 states, "Therefore, the remainder of this wildlife discussion will address pronghorn and their critical winter range in the Red Rim petition area." Since the document is an EIS, as well as a PED, we believe that the impacts on all wildlife should be addressed.

Page IV-55 states that BLM developed buffer zones to protect prairie falcon and ferruginous hawk nests, but the only buffer zones indicated in the draft PED/EIS are for a golden eagle nest located in T.19 N., R. 70 W., sec. 8 and for a golden eagle nest in T. 20 W., R. 89 W., sec. 9. The buffer zone indicated on Plate 1 for the eagle nest in section 8 does not reflect the buffer zone that was agreed upon between BLM and FWS (refer to enclosed Map No. 1) and should corrected. These nests were only provided partial protection under unsuitability criteria procedures since most of the buffer zones lie on private lands. The rest of the golden eagle nests and prairie falcon eyries (refer to enclosed Map No. 2) were not declared unsuitable for mining because their designated buffer zones, within the petition area, also lie on private lands. Concerning the 31 known ferruginous hawk nests located within the petition area, BLM applied the exception provision under Criterion 14 and declared that the nest areas and defined buffer zones were suitable for coal mining if lease stipulations were developed to afford protection to ferruginous hawks. It is our understanding from BLM that the mitigation requirements included in the Rawlins BLM District Manager's letter dated May 5, 1983, (Appendix J of the draft PED/EIS for the protection of ferruginous hawks, mitigation requirements 10 and 11) will be stipulated as part of any lease issued for the tract. FWS has not officially reviewed these mitigation requirements, and we are not in complete agreement with them. We will be initiating discussions with BLM to refine these requirements in the near future. Results of these discussions should be incorporated as part of any lease issued for the subject area. The final PED/EIS should clarify these points and provide a map showing locations of all raptor nests and the designated buffer zones that have been declared unsuitable for mining. Reference maps are enclosed.

In addition, in our review of the draft PED/EIS, we found no mention of endangered species or compliance with Section 7 of the Endangered Species Act of 1973, as amended (ESA). By memorandum of November 28, 1979, the Bureau of Land Management (BLM) requested formal consultation on the black-footed ferret (Mustela nigripes) for the Red Rim coal lease area. In a memorandum of February 22, 1980, the FWS issued a non-jeopardy opinion on the black-footed ferret, with the following recommendations.

1. Prior to the approval of a plan for mining and reclamation, the applicant should identify prairie dog towns that will be impacted and conduct black-footed ferret searches on those towns that the Federal land management agency and FWS mutually agree should be surveyed. Surveys should take place during the period of May 1 to October 15, preferably July through September.

2. The appropriate Federal agency (BLM or OSM) should reinitiate formal consultation if these surveys locate black-footed ferrets or their sign. The consultation should determine whether or not certain areas are unsuitable for mining or recommend that the appropriate stipulations be placed on the mining activity.

3. If black-footed ferret sightings or observations of their sign are made prior to leasing, BLM should reinitiate formal consultation.

The final PED/EIS should include a discussion of this consultation, and OSM's commitment pursuant to Section 7 (a)(2) of the ESA to ensure that mining in the Red Rim lease area will not jeopardize that continued existence of the black-footed ferret. New FWS black-footed ferret survey guidelines are being finalized and should be available in early 1984. These new guidelines should be followed when conducting future black-footed ferret surveys.

Page III-13 states, "Should the production of coal from Red Rim be denied, the total National coal expenditures would increase by $5 to $11 million," yet page V-4 states that "the loss of coal from Red Rim (2 million tons per year, 69.3 million tons over the life of the mine) caused by an unsuitability designation could be compensated for from other mines in the State, and at costs that would probably be comparable." This last sentence seems to state that there would be no increase in National coal expenditures. This discrepancy should be explained or corrected.

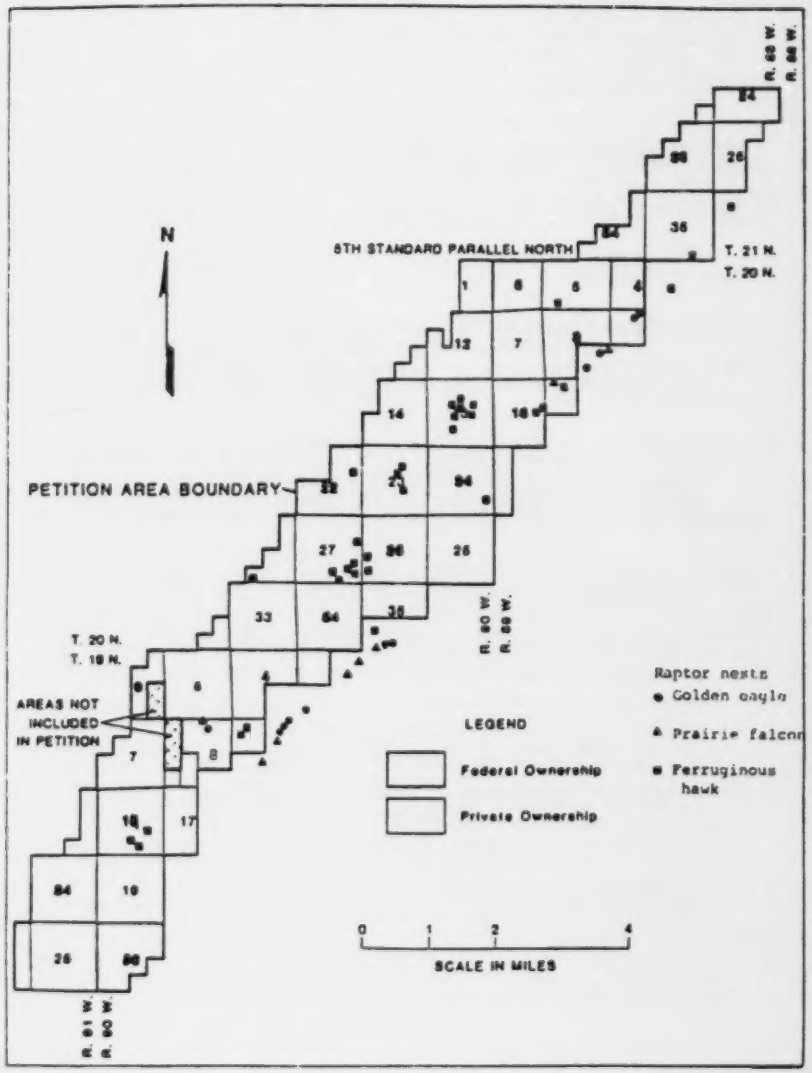
We also note inconsistencies concerning the assumed annual production for the Red Rim tract. Table III-6 on page III-12 assumes 4.99 million tons annually. Page III-13 assumes 2.5 million tons annually and page V-4 assumes 2 million tons annually. These conflicting figures make it difficult to evaluate the supply and demand for this coal. These sections need clarification. The following statements on page V-4 also raise the question as to the need for coal from Red Rim:

> ". . . most active coal-producing mines and areas in the State have a greater capacity to produce coal than is currently being utilized."
>
> "There are no Federal coal leases in the immediate area that would be affected if the petition is granted."
>
> "The impact [denial of coal extraction] would not be irretrievable or irreversible . . . ."
>
> "Loss of production from Red Rim . . . owing to an unsuitability designation would not cause a significant impact on Regional coal supplies."
>
> "National coal consumption should not (within the foreseeable future) be limited by supply constraints caused by designating the petition area as unsuitable for mining."

This concludes our comments on the subject draft PED/EIS.

Enclosures

cc: ES Project Leader, Cheyenne, Wyoming
ES Field Supervisor, Billings, Montana
Chief, Division of Endangered Species, Region 6
Wyoming Game and Fish Department,
Cheyenne, Wyoming
BLM State Office, Cheyenne, Wyoming
BLM District Office, Rawlins, Wyoming



APPENDIX B

Comments of the Wyoming Game and Fish Department
on the Draft RED

BUNIN

January 6, 1984

EIS 237/23
USDI/OSM/BLM
Rawlins District
Overland Resource Area
Red Rim Draft PED/EIS
Carbon County
A-30, 10, E-25, MD-27

Mr. Allen D. Klein, Administrator
Western Technical Center
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 Fifteenth Street
Denver, Colorado 80202

Dear Mr. Klein:

In response to your notification of December 7, 1983, we have reviewed this revised document and offer the following comments.

P. viii - Winter population estimates of pronghorn do not range from 700 to 2,400. The current estimate of pronghorn wintering on Red Rim is 2,400. The low number was based on 1978 Baggs DAU population estimates. Numbers have increased dramatically since 1978.

P. ix - The data on numbers of deer hunters in the Baggs herd unit are incorrect. The data presented are for only Hunt Area 35.

"The problem of having an existing pronghorn herd population which exceeds the carrying capacity of the land will continue until the total numbers of pronghorn in the Baggs Herd are reduced." We know of no documentation that this herd is over carrying capacity. We've said we are over our population objective. That is not carrying capacity. That objective is based on other concerns as much as biology.

"...extraction of the coal...could result in a long-term loss of wildlife habitat...." We contend it will result in a loss of wildlife habitat. The language in this document appears designed to hedge on this issue. Where impacts are discussed, the words "could", "might", and "may" are used to give the reader the idea there may not be any impacts. Where reclamation is discussed, the words "would", "will", and "can" are used to give the reader the idea there is no problem.

Mr. Allen D. Klein
January 6, 1984
Page 2

P xi - "The technology for long-term establishment of certain shrubs...is not, at present, clearly defined...." We are unsure of this meaning, if it can be done, or has been done, clarification is in order.

- "Reclaimed lands would support some level of pronghorn use 10 to 12 years after planting." How much use and for how long should be defined, along with what this would do to the ability of these lands to support the Baggs Herd.

- We do not agree with the authors that a 40-45 year impact "short-term." We consider 10-15 years short-term.

- "Impacts to pronghorn and pronghorn habitat would be less under the partial-designation alternative than under the no-designation alternative." This statement should be supported with quantification.

- Designation as unsuitable for mining those areas on which reclamation is not technologically and economically feasible is required by law. This fact should be noted.

P. 1-6 - Again, use of 40-45 years as "short-term impact" is unacceptable from the wildlife standpoint, to this Department. Ten to fifteen years is considered short-term in impact analysis. We consider impacts over 40-45 years to be long-term impacts.

P. 1-13 - This is the first reference in this document to the fact that this antelope population is above objective. It is mentioned many more times in the text. We feel this is a moot point. All of our impact analyses assumed that this population would be at its objective before this mine was initiated. Whether or not a population is presently at objective makes no difference in this analysis.

BLM data do not support the contention that current numbers of antelope on the Red Rim or Muddy Creek winter ranges are causing over-utilization of key shrub species.

P. 1-13, Alternative A. The document notes that declaring the area unsuitable for mining would preclude extraction of 69.3 million short tons of coal. Data gathered by the Office of Technology Assessment (1981), indicates federal coal leases have already been issued for tonnages far in excess of projected coal demand, even without taking private coal production into consideration. Analysis of this Office of Technology Assessment further indicates to us that the percentage of coal contributed by this mine would not be a significant proportion of the overall coal production in this country. Conversely, this mine will impact a significant proportion of the world's pronghorn population, for which there is great hunter demand.

Pp. I-13, Alternative 3. Not Designate Any of the Petition Area as Unsuitable for Surface Coal Mining Operations. - "Selection of this alternative would not imply approval of surface coal mining operations within the petition area." We believe that if none of the petition area is designated unsuitable for mining, the agencies have decided it can be mined, and thus a permit will be issued. It would be illogical to presume otherwise. It is our opinion that failure to designate the area as unsuitable will result in its being mined.

Pp. I-16,17 - Why, if there is essentially no problem for pronghorn from mining Red Rim, as the BLM planning documents stated, did BLM decide there should be no coal development on other critical winter ranges? We believe that this decision was made because the rest of the pronghorn in this herd need the remaining winter range. This is tacit recognition that there are going to be large impacts from mining critical winter range on Red Rim, yet the area was declared suitable for mining.

Page II-1 - Data on winter sage grouse distributions and numbers are incorrect. Data from the Rocky Mountain Energy Study indicate that all of the Rim was used during the winter of 1979-80, while major concentrations in the winter of 1980-81 were in the southern portions of the area. Up to 3,000 birds have been seen using the Red Rim.

P. II-3, Para. 2 - Aerial photographs of Red Rim, in Irwin's Red Rim Report document the effects of snow cover and the fact that Red Rim is surrounded by a belt of deep snow in severe winters.

P. II-3, Para. 3 - This section implies that pronghorn move widely in the winter. While it's true that pronghorn use of winter range varies with the severity of the winter, prevailing winds, snow depth, and availability of forage, this movement occurs within the bounds of the traditional winter range, except in mild winters.

We disagree with the idea that critical winter range delineation means there are no physical limitations on distribution during severe winters. Physical limitations do exist in the following forms. Highway 789 to the west is fenced with woven wire, as is Interstate 80 to the north. The Continental Divide is east of the rim and there is considerable limitations to the south around the state line. We agree that, given freedom of movement, antelope will use areas outside the critical winter range in mild winters, but we can demonstrate that these areas have physical boundaries around them during severe winters.

P. II-3, Para. 4 - Aerial counts are often sacrified by a correction factor, not a "population model" factor.

P. II-3, Para. 5 - The population objective for this herd is only partially related to the ability of the area to support pronghorn. It's also related



to socio-politics - the desires of the various publics. There is no population objective for Red Rim because antelope there do not constitute a separate and distinct population, but rather only a portion of one.

P. II-5, Para. 1 - The Baggs Antelope Herd is being reduced to bring the herd to planned objectives, not because of range deterioration and over utilization. Reduction of antelope on Red Rim has been difficult because the private landowner involved will not allow hunter access. Most of the reduction will, therefore, occur in other portions of the Baggs Antelope Herd. This means that the number of antelope remaining on Red Rim in winter will represent an even greater proportion of the Baggs Herd - perhaps as much as 26% if there are 2,000 antelope wintering on Red Rim following herd reduction.

P. II-6, Para. 2, Table II-2 - The number of antelope in nearby portions of Colorado and Wyoming has nothing to do with the Red Rim issue. This entire paragraph is immaterial, and should be deleted.

P. II-6, Para. 3 - As was documented the last three years, pronghorn use of Red Rim is high even during mild winters. During severe winters, pronghorn move to Red Rim for food and shelter.

P. II-7, Para. 4 - Winter population estimates are given here as a range. That is incorrect. Animals are not static. The real estimate is based on the maximum number seen on the site - the number of animals depending on the site in winter. Estimates of losses and impacts should also be based on those maximums.

P. II-8, Para. 5 - We would question why Yoakum's pronghorn management guidelines are used here. By nature, they have to be general, yet work done by this Department, BLM, and Irwin was site-specific. We feel those site-specific data more fully describe factors affecting antelope on Red Rim.

P. II-10, Para. 2 - This whole discussion of the nutritional value of sagebrush is unnecessary. Unless reclamation can be designed to enhance the nutritional value of sagebrush, this is filler which is restated in the next paragraph.

P. II-11, Para. 3 - Are pronghorn feeding on sagebrush in draws, where plants protrude above the snow, or on south-facing slopes and windswept ridges where there is little snow? It's not clear in this paragraph.

P. II-14, Para. 2 - We feel data concerning the importance of free running water during winter to be misrepresented. The winter of 1983-84 was one of the wildest ever recorded for this area. Antelope were not forced to use any traditional winter ranges. In 1980-81 water was important in winter because of the lack of snow, but that winter was quite rare for this area.

P. II-11, Table II-4 - This table of nutritional values of winter forage adds little to the document. It should be deleted.

P. II-13, Para. 2 - "Owing to increased livestock use in the proximity of water, plant communities and associated species near Separation Creek have been influenced to a much greater extent than those in the breaks near the Red Rim escarpment." Does this mean that livestock have overgrazed areas near streams and altered the vegetative composition? Some clarification is in order.

P. II-13, Para. 3 - With all the rationalization removed, we interpret this paragraph to say BLM's vegetation work was not done well enough to allow comparisons with other studies. If so, why mention the study? The same is true of the next paragraph. We would say that the limited data collected by OSM in a day or two on this site are of similar value.

P. II-16, Para. 2 - Data with inadequate samples from only a portion of the area are not suitable for comparison with any other studies. These should be omitted.

P. II-19, Para. 4 - Why include a discussion of SVIM if habitat data are not available? We recommend this be deleted also.

P. II-21, Land Use - For comparison with antelope numbers, we suggest it may be appropriate to show how many cattle use the 2,434 AUM's available on this allotment, over the past 5 years.

P. III-11-13 - We see here what the coal market model says about coal demand.

DOE estimates do not agree with more recent figures of the Office of Technology Assessment. The Office of Technology Assessment report indicates that much less of the nation's demand for coal will be met by this mine.

P. IV-1 - Wyoming law requires restoration of "highest previous use," and that is the use of highest economic value to citizens of the region. In our opinion, that use is wildlife habitat, not livestock grazing, on Red Rim. Wildlife habitat cannot be restored in sufficient quantity to support wintering antelope, therefore, the area is unreclaimable. We contend this allegation is hardly frivolous.

P. IV-2 - "During the life of the mine, a maximum of approximately 4,000 acres of mined land would be unreclaimed at one time." We do not agree with this statement. On this site, reclamation must restore shrubs. Such reclamation has been done with limited success in Wyoming, and we do not believe it can be done on Red Rim within any reasonable time frame. This



document considers 40-45 years short-term, which is an admission that there will be a lot more than 4,000 acres disturbed at one time. Additionally, we examined approximately a dozen comparable EIS, none of which considered 45 years a short-term impact.

P. IV-2 - BLM's mitigation requirements for the Red Rim lease are a moot point, since the Wyoming DEQ has stated reclaimability is a "frivolous" issue (Page IV-1). Therefore, we have no assurance any of this will be considered in the mine plan. The habitat mitigation plan proposes things that may or may not mitigate losses. We have no assurance these will be part of the mine plan, or that there is a contingency in case BLM's mitigation requirements do not work.

We question the need for three reclamation scenarios, including non-restoration of winter range, when restoration of that range is the important issue in this petition.

P. IV-5 - "...Wyoming DEQ and OSM could require the reclamation stipulations outlined in this scenario...." They also might not, in which case the area will not be adequately reclaimed for wildlife and livestock.

"All mined lands would be reclaimed to multiple-use native grasslands for livestock grazing and wildlife habitat." This Department has been working with both agencies for some time, and we have an the past accepted loss of shrubs on noncritical winter range. We have also agreed with trade-offs on private lands, where shrub-grass habitat has been converted to grassland. We do not want anyone to presume, though, that because grassland is habitat for *some* wildlife (much less wildlife than found in shrub-grass areas), it is valuable to wintering antelope, or that it is quality wildlife habitat. We have accepted conversion of mined areas to grasslands because it occurred in areas not critical to wildlife. Grassland is *not* antelope winter range, and it will provide *no* pronghorn critical winter range. We recommend that fact be made clear in the final EIS. Restoration to current DEQ standards would not meet antelope winter needs. The law requires restoration to premining shrub densities.

P. IV-6 - Reclamation Scenario 1 - "Special attention would be given to recreating those narrow draws (important as shelter for pronghorn and for collection of moisture for shrubs)." We feel the author has failed to understand the nature of this winter range. Shrubs in the draws are unavailable to antelope in severe winters because they are buried under snow. Those on the windswept slopes and ridgetops are used as forage. How is moisture to be provided for them? We know that shrubs in draws are more likely to grow, but we also know that those are largely useless to antelope during winter when they are unavailable due to heavy snow cover.

"The best current available technology to enhance shrub community development would be utilized...." Exactly what is that? Previously in this

document, such technology was said to be "not clearly defined," which means nobody knows how. Are we to depend on something that has never been used?

"...mitigate potential loss of pronghorn critical winter range." The fact is that antelope will be lost. The word "potential" is misleading in this context.

"...this effort would require extensive use of tubelings, transplants, and seedlings." Our information indicates that only 20% of tubelings survive if there is no drought. Transplants have had spotty success, and seeding of sagebrush are unsuccessful in most of Wyoming.

"...re-establishment of optimum vegetation patterns for pronghorn herd maintenance...." What exactly are those vegetation patterns?

"Not all of the habitat components are known...." How can you re-establish habitat components if they are not known?

Shrubs planted in "selected areas of greater effective moisture" would be in draws, under snow, and unavailable to antelope in winter.

Pp. IV-5 & 6 - We feel the use of any reclamation scenario except No. 1 to be unacceptable. Others will not restore the premining land use, nor restore densities of shrubs sufficient for critical antelope winter range.

P. IV-6 - We reiterate our opposition to the term "short-term impacts." Ten to fifteen years is short-term, 40-45 years is not.

P. IV-7 - Use of a reference nearly 15 years old to prove that pronghorn are a valuable resource creates a serious understatement. It's now estimated that Wyoming contains 75% of the world's pronghorn. Given that, it seems obvious that they have at least "...some value as a natural and scientific resource."

"Critical winter range is valuable habitat for pronghorn." This is extremely understated. Critical winter range, by definition, is essential habitat for pronghorn.

P. IV-9 - Red Rim was cooperatively classified as critical winter range in March of 1979 by the BLM and the Department. The data presented here are incorrect.

The comment here on winter population estimates ignores the concept of critical winter range. There is a great deal of averaging of high and low estimates. The important figure is the maximum count. That always occurs in late winter. Counts substrate that Red Rim is important to a lot of pronghorn, even in mild winters. Considering that in the last severe



winter (1978-79) the number of pronghorn increased from 869 to 1,408 from early January to late February, as winter severity increased, we wonder how many pronghorn might have been there in February, 1983, if the winter had been severe. After all, there were 2,073 there in early 1983 even though the weather was mild.

Data concerning the percentage of antelope from the Sages Herd that used the Rim at any time are incorrect. Our analysis was based on this population being at objective, not at the current level.

P. IV-9 - It is stated that the Department will reduce this population below the objective of 7,200 animals should the mine be leased. This is correct but it does not mean that this is our preferred alternative. We will be forced to reduce this population commensurate with reductions in available critical winter habitat. This statement is referred to many times in the document, but not in context.

We feel the document should include an estimate of pronghorn that would be lost to causes other than winter range loss, such as fencing.

P. IV-11 - The 10 and 12 year lag "before restored lands could support the premining level of pronghorn use" is idealistic, at best, and totally unsubstantiated by any data of which we are aware.

"Given time, sagebrush would become re-established on reclaimed sites...." Based on data from sites with similar rainfall, topography, and soils in Wyoming where you have data showing this has already occurred, what is the estimated time period?

P. IV-13 - Heavy snows make sagebrush in smaller draws inaccessible in nearly all normal to severe winters. The last sentence of this section, which pertains to snow accumulation in draws, makes no sense - it doesn't logically follow the rest of the paragraph.

P. IV-14 - "While density is an important measurement, the more important factors on the site are cover, production, and availability." No matter what the production or availability, a stand of sagebrush with 10 plants per acre is not going to be good winter range for antelope. All factors have to be considered. No data indicating that this herd could be supported by lower density shrub stands on critical range exists to our knowledge.

P. IV-15 - "The value of undisturbed areas between pits, roads, and stockpiles is arguable. Pronghorn have adjusted to various mine activities at numerous western mines." Have any of these mines been in critical winter range? If not, can anyone rationally presume pronghorn in such areas will respond the same way?

"Spoil piles and pits...might affect forage availability and pronghorn movements." A spoil pile with nothing growing on it is obviously going to decrease available forage. Pits, which are typically fenced, and even those that are unfenced, are going to restrict pronghorn movements.

"There is no evidence to suggest that revegetation of the Red Rim area is technologically infeasible." There has been no such allegation to our knowledge. The allegation concerns reclamation, which is different than revegetation. This document states that shrub re-establishment is probable, but the discussion concerns saltbush and shadscale, species which are not going to restore the winter range for pronghorn.

This section makes no mention of studies where re-establishment of sagebrush in areas of 9 inches of precipitation has been documented. The issue is pronghorn winter range, and sagebrush is the most important component of that range. BLM staff specialists felt re-establishment of sagebrush during the life of the mine was impossible, and that nowhere in Wyoming has any such reclamation been demonstrated. Livestock-exclusion, and probably pronghorn exclusion, would probably be required for at least 10 years for even minimal success.

P. IV-16 - OSM and DEQ have predicted reclamation scenario 1 or a 10 to 15 year turnaround, yet the last sentence of paragraph 3 states that the mining company will have to prove that this scenario is technically feasible. If it isn't currently feasible, we do not feel it should be included in this document.

"...the mining and reclamation plan would have to show that it (restoring pronghorn critical winter range) could be done before a permit to mine could be granted." We know of few mines denied a permit in Wyoming. Despite such stipulations, we are not confident a permit would be denied. In taking over the Federal responsibility via the state coal program, DEQ also accepted responsibility for unsuitability petitions such as this, and thus decisions affecting leasing.

Reduction of pronghorn in the Baggs Herd Unit would be undertaken whether or not Red Rim is mined, but much of the reduction in the herd would occur off Red Rim, where range conditions are not as good, and because hunter access is limited on the private lands in question and the associated BLM lands.

P. IV-17 - The section on Irwin's study of pronghorn distribution is interesting, but of little value because there was never a normal or severe winter during that study. Those data cannot be used to accurately predict what may happen in a bad winter.

As stated before, certain limitations dictate that pronghorn reduction in the Baggs Herd will be done mostly in areas other than Red Rim. It is not





legitimate to use a program to reduce pronghorn on Red Rim to prevent their dying from loss of mined winter range as part of the justification for that mine. Such a massive antelope reduction on Red Rim would not be necessary if the critical winter range were not mined.

"OSM and DEQ estimate that a maximum of 4,053 acres of critical winter range would be unreclaimed at any one time." Given the lack of data on shrub restoration, we feel this statement is only opinion. It might be true if Reclamation Scenario 3 (no winter range restoration) is used.

It is our opinion the selection of either proposed BLM alternative will not insure the maintenance of the population of antelope using the Rim. We have never agreed with either.

Paragraph 5 should be deleted from the text.

P. IV-20 - We disagree with the statement that the population objective is dependent solely on the carrying capacity of the winter ranges. While carrying capacity of a winter range is the limiting factor on a population, population objectives are often set at a much lower number due to other game management considerations. A pronghorn reduction program would not be undertaken to "protect habitat quality", but because mining of the winter range might eventually starve the pronghorn anyway. We suggest that all references to pronghorn reduction to fit a lower carrying capacity be deleted.

P. IV-21 - We disagree with the statement that with Scenario I, the hunting revenues lost would be "short term." Few organizations would consider loss of funds over a time period of 40 years "short term."

P. IV-22 - "There are no known data to quantify the exact number and types of topographic features that would be necessary to restore reclaimed lands...." Obviously, what exists there now is what is necessary. "Irwin and others (1983) stated that...are important during normal winters...." Irwin and his students did no research during what we consider to be a "normal" winter. All were mild.

"...premining topography would be restored to the extent technically possible." This statement indicates that if restoration of topography isn't technically possible, DEQ will not require it. This is not suitable for use as an analysis assumption. We suggest "premining topography will be restored."

Again, we dispute the idea that reclaimed lands would support any significant level of winter pronghorn use 10 to 15 years after planting. There is no evidence for this. We object to use of a pronghorn reduction program necessitated by a mine to justify that mine.

Reduction of pronghorn under reclamation Scenario 1 might be short-term, but we believe that scenario is impossible, since there is no evidence it can be done. We recommend it not be included in this document.

Pp. IV-25-45 - All of the reclamation possibilities noted here are theoretical. None have been attempted, let alone accomplished. We feel they do not contribute to the document.

P. IV-46 - "It is doubtful, however, that the density is as important as the amount and availability of forage." We would ask that data or references be provided here, substantiating this statement.

P. IV-47 - "Researchers with Argonne National Laboratory working on test areas at the Jim Bridger Coal Mine in southwestern Wyoming have concluded that operators will probably be able to meet the OSM-mandated ten-year revegetation success responsibility period for arid sites...." That success is just to get some kind of vegetation to grow, not to restore shrubs. Obviously, the restoration of pre-mining shrub density remains in question. It is unwarranted to assume nearly 100% sagebrush survival in this area. Mortality rates in the Gillette area, where precipitation is over 12" are only 60 to 70 percent.

We do not agree that reduction of 50 percent or more in shrub density is a "modest reduction."

P. IV-48, Table IV-6 - We doubt that spending $48,000 per acre for reclamation can really be considered profitable. These costs, based on figures from the Seminoe No. 1 and No. 2 mines, are unrealistic. Those mines are not restoring critical winter range, nor large acreages of shrubs, so it is our opinion these costs are undoubtedly greatly underestimated.

Atriplex has not been shown to be an effective substitute for sagebrush on critical antelope winter ranges in Wyoming.

Pp. IV-50,51 - The EIS indicates that under Scenario 1, it may be possible to return the area to full production for critical pronghorn habitat "if all factors were optimal". The document suggests that it will take a minimum of 10 to 12 years after planting each reclaimed mine area. In fact, then, since mining will be occurring across Red Rim for another 45 years, it may not be sufficiently reclaimed to full production for, at best, 50 to 60 years. Obviously, this presents a much different picture than merely stating, as was commonly done in the document, that reclamation will be possible in 10 to 12 years. We do not agree that critical pronghorn habitat can be restored in 10-12 years, using any techniques, much less those described in this EIS. There is no evidence anywhere in the West indicating this can be done. Therefore, it is our contention that a decision to destroy critical antelope winter range cannot be justified.



P. IV-52 - There is no evidence to support the notion that it is possible to produce a more vigorous plant during reclamation so that reduced densities of shrubs will support these antelope.

We agree that suitable soils for replanting big sage will be very limited post-mining. How many acres can be reclaimed?

P. IV-54 - Exclusion of the Separation Creek area will help minimize impacts to grouse broods, but will have little impact on loss of important wintering sites for that species.

P. IV-55 - In our experience, the reclaimed areas will have to be fenced or wildlife and livestock will seriously hinder plant success. This means a further reduction in forage available for wintering antelope. Antelope will still be excluded from critical winter range.

P. IV-56 - References are made to the Game and Fish having to reduce herd numbers to compensate for habitat losses due to the mining. However, simple reduction of numbers across the entire DAU will not necessarily reduce the numbers dependent upon Red Rim. It is likely that there would have to be herd reduction far below the desired objective to insure that a sufficient proportion of the pronghorn normally using Red Rim were removed, especially so if hunter access continues to be limited.

P. IV-57 - We agree that the loss of the topographic features of the rim will make it impossible for adequate soil/moisture regimes to be replaced.

P. IV-65 - The loss of ground water for over 100 years will seriously hinder any reclamation attempts. We recommend that OSM and BLM should consider stipulating that the company will have to irrigate for that length of time to insure reclamation success.

Appendix F, P. F-2 - We are not willing to accept lower "more reasonable" densities of important winter food, big sagebrush, on critical winter range. This document proposes a reduction from 7,144 plants/acre to 2,000. We find this proposal unacceptable for the wildlife concerned.

Please contact us if we may be of further help.

Sincerely,

FRANCIS PETERA
ASSISTANT DIRECTOR
OPERATIONS
WYOMING GAME AND FISH

Mr. Allen D. Klein
January 6, 1984
Page 13

FP:MBM:big
cc: Game Division
Fish Division

Mr. Patrick Boles
DEQ/LQD
401 West 19th Street
Cheyenne, Wyoming 82002

Mr. Dick Hartman
State Planning Coordinator
2320 Capitol Avenue
Cheyenne, Wyoming 82002

APPENDIX C

Comments of Coal Companies on the
Wyoming DEQ Proposed Shrub Density Standard

BUNIN

# BLACK BUTTE COAL COMPANY

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1000 Kiewit Plaza
Phone: (402)342-2052

MINE OFFICE
Point of Rocks, Wyoming 82942
P. O. Box 98
Phone: (307)382-6200

August 10, 1983

Address Reply To:_____

Mr. Gary Beech
Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, Wyoming 82002

Dear Gary:

With regard to the proposed shrub density standard outlined in your letter of June 24, 1983, I would like to make some suggestions for revising the standard.

My primary concern with the proposed standard is the provision that would require a higher shrub density over at least 10% of the reclaimed area. I assume that the reason for proposing a variable density standard would be to promote a patchy shrub distribution that would increase wildlife habitat diversity. I agree with this idea in theory, but I have several reservations about it in practice. I would make the following points in opposition to the variable density standard:

1. Our experience at Black Butte Coal Company has shown that is is <u>almost</u> impossible to determine the optimal locations for establishing shrubs on reclaimed lands before initial revegetation operations have been completed. There are simply too many unpredictable variables involved. A few of these variables include competition with other plant life forms, subtle differences in soil structure and texture, and the different adaptabilities of various seed sources to variable edaphic and micro-climatic conditions.

2. Random shrub establishment patterns alone should create a patchy shrub distribution because of the inherent variability of soil conditions on reclaimed mined lands.

3. I believe that in order to achieve a shrub density of 1 shrub/$m^2$ on a parcel of reclaimed land, it would be necessary to essentially exclude perennial grass competition from the area. This could create a dangerous situation in terms of soil stabilization since shrub establishment is much more erratic than grass establishment.

4. A variable shrub density standard on a single portion of land will complicate trend monitoring and bond release evaluations tremendously. Given that it is nearly impossible to predict the areas of highest shrub establishment potential before revegetation efforts are well along, it would be necessary to search out and designate areas of high shrub density from throughout the area to be sampled at the time of sampling. This would be a time consuming and frustrating process in my opinion.



In summary, I would recommend that the 1 shrub/$m^2$ provision not be included as part of the shrub density standard. The provision would be very difficult to achieve and would be a headache in terms of shrub monitoring and evaluation. I feel that the 1 shrub/9 $m^2$ standard over 100% of the area would be an adequate base to assure acceptable long-term shrub establishment. However, if those involved with creation of a shrub density standard feel that a higher standard is needed, I would strongly recommend that the overall standard be raised (to a maximum of 1 shrub/6 $m^2$) and that the variable density standard (90% - 10%) not be enacted.

Sincerely,

BLACK BUTTE COAL CO.

Forrest Luke
Reclamation Specialist

FL/df

cc: Harry Harju

Ref: ESD/CO/83/41
Appendix A

March 4, 1983

Mr. Gary Beach
Review and Analysis Supervisor
Wyoming Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, Wyoming 82002

Dear Gary:

Re: Shrub Standards

Rocky Mountain Energy (RME) has reviewed the Land Quality Division's proposed standards for post-mining shrub density and cover. We have the following comments:

- The change from shrub cover to shrub density is a realistic change in the standards.
- The recommended standard of 1 shrub/9m$^2$ appears to be reasonable provided that this standard will be adjusted based on practical data as they become available.
- The 1 shrub/9m$^2$ should be for the entire mine site including shrub patches.
- The density standard of 1 shrub/m$^2$ for wildlife habitat areas is too high. Pre-mine production (cover) appears achievable at a much lower density if grazing pressure is properly managed.
- Excessive grazing pressure is an important deterrant to shrub reestablishment. Temporary reduction of wildlife populations would benefit establishment of a diverse shrub community suited to wildlife needs.

Discussion

The previous regulation that "shrubs....be returned to a density at least equal to that existing on the area before mining" was unrealistic. The proposed standard of 1 shrub/9m$^2$



appears to be a step in the right direction. In practical terms, however, bond release may not be achievable with this standard. Because shrub reclamation standards are a relatively recent development, neither experience nor research has been sufficient to define achievable goals. The proposed standard is acceptable if it will be adjusted in the future when experience identifies a more desirable standard.

One of the assumptions implicit in the new standard is that pre-mining density is necessary to achieve production equal to that present before disturbance. In fact, given less competition between individuals, far fewer plants may be required to reach pre-mining production levels.

An example of how plant cover (production) relates to density is provided by a recent shrub experiment. RME cooperated with the BLM to demonstrate shrub reclamation technology on Red Rim (RME final report in draft). This experiment is one step in the development of effective shrub reclamation technology. Further study needs to be done, and we are not recommending tree spades as the only answer to rapid shrub reestablishment. Some of the data, however, do illustrate an important relationship between shrub cover and shrub density in the absence of grazing.

Work on the shrub study first simulated mining by removing topsoil and overburden, then replacing these materials. In a second treatment, only topsoil was removed to simulate reclamation of haul roads and facility sites. Mature sagebrush plants were then transplanted onto both the disturbed areas using a tree spade. The density of sagebrush before disturbance was 8,738 plants per acre. Transplants were replaced to a density of 710 plants per acre. The transplants responded with vigorous growth and, in fact, nearly doubled in size during the second study year. Seedlings reinvaded the area due, at least in part, to the seed source provided by the transplants. After three years, density on the transplanted area was 3,958 shrubs per acre and cover was 11.5 percent. Cover in the undisturbed native area was 7.4 percent. Thus, cover on the reclaimed area exceeded that on comparable undisturbed range while density on the reclaimed site was only 45 percent of undisturbed. More than half of the cover in the test area was provided by the transplants. As the invading seedlings mature, shrub cover can be expected to further exceed that present on undisturbed native range. It appeared that the lack of both competition and grazing was responsible for the dramatic increase in cover.

The demonstration plots illustrate that original density is not necessary to equal pre-disturbance cover. Transplants alone were established at 310 plants per acre. After only three years, cover from these 310 plants equaled 74 percent of original cover. High density appears to be related to small individual plants. Original cover may be equaled or exceeded with the 1 shrub/9m$^2$ standard. The higher standard specified for shrub patches and critical winter ranges of 1 shrub/m$^2$ (or denser) seems not only unnecessary, but may be counter-productive. Other benefits of having adequate cover provided by fewer, more robust plants include more open travel lanes and taller plants which would be more available during periods of deep snow.

Browsing has an important effect on shrub reestablishment success. As pointed out in the literature review furnished with the proposed shrub standards, the density of shrubs is dictated in large measure by their history of use or abuse. Grazing pressure presently exceeds levels recommended in the literature in some areas. During the 1981-82 winter, pronghorn antelope used sagebrush to 77 percent on Red Rim. More palatable species which were overutilized to a greater extent were rubber rabbitbrush (87 percent) and green rabbitbrush (78 percent). Some transects in the sagebrush type had average browse utilization as high as 85 percent. With utilization of this magnitude, any new plant must be protected to survive. Protection, or a lower level of use, is essential if more palatable species are to be used in the reclamation process. Shrub reclamation may be limited more by grazing than by any artificial density standard. State agencies could greatly enhance the potential for shrub reclamation by adjusting game populations at least down to recommended carrying capacities. In fact, if highly palatable species are in the reclamation plan to improve the range for wildlife, grazing will have to be reduced yet further. The paradox is that where shrub standards are highest, shrub establishment is often most difficult because of overuse.

As a note of interest, we thought you might be interested in the opinion of a group which routinely works with shrub reclamation. The Wyoming Shrub Workshop is an organization that includes field workers who are involved in shrub reclamation. Members are from mines in central and southern Wyoming. During the February workshop meeting, this group discussed the proposed shrub standards and the following represents consensus opinion:



1. Shrub standards of 1/9m$^2$ are a move in the right direction, but are still too high.
2. Shrub standards of 1/m$^2$ are unreasonable and generally unachievable.
3. Shrub standards appear to be written for sections of the state where reclamation costs are less prohibitive due to the economics of surface disturbance per ton of coal mined (i.e., Powder River Basin).
4. Grazing limits shrub success by killing transplants and seedlings.
5. DEQ/LQD guidelines are becoming too detailed and inflexible.

RME appreciates the opportunity to comment on the proposed shrub standards. If we can be of any help, please don't hesitate to call.

Sincerely,

ElRoy Taylor

ElRoy Taylor
Project Environmental Specialist

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★ NORTH ANTELOPE COAL COMPANY
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February 22, 1983

Mr. Gary Beach
Review and Analysis Supervisor
Wyoming Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, Wyoming 82002

RE: Proposed Standards for Post-Mining Shrub Density and Cover.
(November 29, 1982 Memorandum)

Dear Gary:

First, I would like to commend you and your staff for developing a standard with a reasonable, useful basis rather than simply a replacement of the pre-mining shrub densities.

My only question is whether or not even these densities can be achieved with big sagebrush. Without a doubt, big sagebrush is the most important shrub species on most of the mine sites in Wyoming. However, I do not believe you should require something currently beyond technology, and I think that the January 6, 1983 meeting raised enough concerns to cause you to take another look at your requirements. I ( and I am sure most companies) will not wholeheartedly support a density that may be lower, but is still unattainable. If some resolution concerning the big sagebrush establishment problem could be included, I am sure that the support would be overwhelming. Perhaps the answer would be a plan with partial substitutions of other species to meet density requirements when sagebrush establishment has failed or partially failed.

I have only one comment specific to the November 29, 1982 memorandum. It should be clarified how the 1 shrub/$9m^2$ and 1 shrub/$m^2$ standards will be applied to the same site. Will both be applied to different areas of a site used jointly by livestock and wildlife? Will the 1 shrub/$m^2$ clumps be used to achieve a 1 shrub/$9m^2$ overall density or must the 1 shrub/$9m^2$ be more or less equally distributed with shrub clumps interspersed using a higher standard? These are just some questions that are not answered by the language or by the meeting.

I hope my comments and suggestions are helpful to you and your staff. If I can be of any further help, please do not hesitate to contact me.

Yours truly,

Don Trueblood

Donald C. Trueblood
Reclamation Supervisor

CC: Messrs. L.H. Fox
R.L. Turk

DCT/ds

PEABODY COAL COMPANY
ROCKY MOUNTAIN DIVISION
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March 3, 1983

Mr. Gary Beach
Review and Analysis Supervisor
Wyoming Department of Environmental Quality
Land Quality Division
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Cheyenne, Wyoming 82002

Dear Gary:

I apologize for my late response in commenting on Guideline 2 (Draft) and the proposals on species diversity and shrub density.

In addressing the species diversity question, it is my opinion that a discussion or specific requirement of species diversity not be carried in Guideline 2. This is not to say that it should not be addressed, but rather, a degree of flexibility should be allowed on this issue. Every mine has different vegetation communities that vary in condition and composition. It also allows a company to develop a method of meeting species diversity requirements that satisfies their needs or goals. For instance, if a similarity index is used that is based on relative cover, the specific vegetation communities found on the property determine the level and means of meeting similarity. A standard specified in the Guideline would be restrictive and not allow an innovative approach to be used in meeting species diversity. Also, vegetation communities that had high densities of shrubs or high cover of annuals will not be returned in the postmine vegetation communities. Flexibility must also be allowed in developing diversity evaluations for postmine communities replacing these types.

The proposed shrub density standards, while better than that which is required by strict interpretation of the regulations, still is far from adequate. Pat Boles has done an excellent job in reviewing the literature in determining what he feels is an adequate density level. Unfortunately, I feel that this is still an idealistic view that needs to be looked at more closely.





A problem that has bothered me (and many others, as voiced at the January 6th meeting) is the disregard for the wishes of the private landowner, or landowners who have "buy-back" rights of reclaimed lands. These operators have no desire to have valuable grazing lands reestablished with large amounts of sagebrush. However, they are not adverse to having portions of the landscape developed for wildlife habitat. There is much talk of mitigating long term economic impacts in the area. Since livestock production will be the main source of longterm income once energy development has dropped off, why not improve the range resource to maintain or increase carrying capacity? This, in association with water developments, can benefit livestock and wildlife.

The general consensus is that sagebrush is very difficult to establish, both by seed and to a lesser extent, by seedlings. A study by Native Plants showed that only 1" of the sagebrush pure live seed that was planted at a site established seedlings. Discussions with mines in the Powder River Basin and at Colstrip in Montana also indicate little or no success with seeding of sagebrush. To supplement seeding, sagebrush seedlings could be planted. However, if one evaluates the cost of achieving Mr. Boles' suggested densities the costs become staggering. For example, if 2700 acres are reclaimed over the life of a mine and five percent of the area had densities of 1 shrub/$m^2$ with remaining acres having densities of 1 shrub/$9m^2$, the estimated cost could run as high as $9,000,000. This is a conservative estimate based on cost of the plant and planting at $2.50 each and fifty percent initial death loss. The estimated death loss could be much higher based on review of the literature and discussions with various operators. In addition, if you replace your death loss, there will be additional death loss of the replacements. My point is that in order to catch the "elusive butterfly" of shrub density as suggested by Mr. Boles', a costly and intensive effort will be needed to achieve one level of reclamation. This will be another large cost assigned to the consuming public; the segment of the population which pays for reclamation.

The total expected impact to native grass/shrub-lands in the Powder River Basin runs in a somewhat narrow band (in relation to total area) from the Gillette area south to NERCO's Antelope Mine. Reclamation activities will develop blocks of reclaimed vegetation of various ages and composition. In addition to this, natural regeneration of shrubs in addition to spread of shrub plantings will occur. It remains to be seen whether reduced shrub densities within this band of reclaimed vegetation will have detrimental affects on wildlife. Native undisturbed shrublands will occur throughout the area and on either side of this band. It is my suggestion that the broad setting of present and projected disturbance and reclamation as a part of the total area be looked at. Also, other factors included in the reclamation plan should be considered. As an example North Antelope Coal Company's planned impoundment at the North Antelope Mine should be considered as an offsetting measure for reduced shrub densities.

Reestablishing shrubs on reclaimed areas is necessary for wildlife and can benefit livestock. It is the extent of reestablishment that causes the greatest concern of industry and livestock operators. Reclamation technology today provides for advanced stages of secondary succession. This will enhance natural regeneration of shrub communities over time.

I feel that AMAX's approach for a density standard is a workable alternative. Designating a certain percentage of the reclaimed area with a range of densities appears to have merit for further development. I would suggest that a future meeting be held to resolve issues and develop a workable shrub density standard. At this meeting should be a diverse group of people involved in land use, including Soil Conservation District representatives, Cattlemen Association representatives, Industry representatives and those concerned with wildlife and overall environmental issues.

Thank you for the opportunity to comment on these issues. I am looking forward to working together with all interested parties as well as the DEQ staff in resolving these issues.

Sincerely,

Vern Pfannenstiel
Range Scientist

VP/dkt
cc: Don Trueblood, NACC
Jim Lunan

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# FEDERAL BENTONITE

August 8, 1983

Gary Beach, Review and Analysis Supervisor
Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, WY 82002

Dear Mr. Beach:

I attended the shrub density standard workshop on August 1, and I would like to submit several comments on the topic. I should state from the outset that I am aware that the proposed standard has primary application to the coal mining industry, yet, as a general regulation, the potential for application to other segments of the mining industry is a very real possibility. Thus, I feel that comments from the non-coal segments are warranted.

It was agreed by all present that the existing standard is not realistically achievable. The present proposal is admittedly less stringent, but has no more basis in field tests of feasibility than does the original. This is far from the progressive action that is needed to achieve actual, realistic results on the reclaimed sites.

Due to the lack of substantive data to base such a detailed regulation standard, I would suggest that the best possible option would be the placement of a three to four year moratorium upon the establishment of a standard. It should be outlined in this moratorium that during the specified period the mining industry, Wyoming Department of Environmental Quality, and Wyoming Game and Fish Department would be obligated to collect and compile such data as to address the economic feasibility of establishing various densities of several shrub species in diverse areas of the state. Further, it is suggested that Wyoming Game and Fish Department and Wyoming Department of Environmental Quality participate in a cooperative effort to establish demonstration plots of the patterns and densities outlined in the present form of the proposal. This would allow a stronger base of experience for all involved, and would establish credible methodology to accomplish the proposed objectives. This action would also allow periodic demonstration of which methods are considered to be the best technology currently available. The demonstration plots and general dissemination of the methods and resulting data would certainly be a facilitative step toward achieving the actual establishment of shrubs in the densities and conformation requested in the present proposal.

*A Division of Aurora Industries, Inc.*



If this suggestion is not considered acceptable, then I suggest that the present proposal be amended to indicate that the required average shrub density be $1/9m^2$ on the entire area of consideration, which includes the $1/m^2$ on at least 10 percent of the area. I believe that, even though the feasibility of achievement would be highly questionable, this would have the affect of establishing more dense shrub stands and greater habitat diversity by rewarding more concentrated shrub establishment efforts.

Thank you for taking the preceding comments into account. I hope that they have been received in the same constructive nature in which they have been offered.

Sincerely,

Bob Green
Wildlife Biologist

BG/lsd

cc: Harry Harju

229

My name is Strat Murdock. I am the Environmental Coordinator for the Shirley Basin Mine in Shirley Basin, Wyoming.

I appreciate the DEQ allowing me the opportunity to comment on the current shrub density standard. The standard itself has many faults which I shall now enumerate.

1. In Shirley Basin, the standard is not <u>feasible</u> or <u>necessary</u>.

   A. Not Feasible

      1. It is not feasible from the standpoint of ecology. Reclaimed land cannot be compared to native rangeland because it is like comparing "apples and oranges." All the major components of the ecosystems, i.e. soil, vegetation, aspect, cover, wildlife, etc., have been either changed, displaced, or destroyed. The limiting factor for shrub establishment is what the new ecosystem will produce not preconceived laws or regulations.

      2. It is not feasible from the standpoint of the time frame, i.e. ten years. Trends toward greater shrub establishment are apparent but the standard cannot be met within ten years.

   B. Not Necessary.

      1. The amount of disturbed acreage is so small compared to the total that impact upon wildlife is insignificant.

      2. Immediate shrub replacement (within ten years) is not necessary because reclaimed land provides large amounts of diverse forage not obtainable on the undisturbed rangeland. This forage is utilized reasonably well by large and small mammals, water fowl, and passerine birds.

2. Departures from the restoration goal based on noncompliance with BAT would not be an advantage at all. As a matter of fact, this may be very damaging to mining companies and the DEQ. It would invite legal action and raise questions such as "If the mining company can't meet the reclamation standard even by using the 'Best Available Technology' why was the land allowed to be mined in the first place?" Another question it would raise is "Can reclamation be achieved?" The potential for increased confrontation and controversy is very great.

3. BAT, as defined by the administrator, is not necessarily the same definition used by industry. There is very little comfort to having the administrator determine compliance or noncompliance based on BAT. This gives far too much discretion to the administrator. I would prefer to have compliance nor noncompliance based upon conditions of the mining permit.

4. Distribution of the higher shrub density areas cannot be determined by administrative decree. The administrator and the operator do not know where the higher shrub density areas are going to be.

5. Mention was made that the standard is a minimum goal. This is a contradiction. A standard is not a <u>goal</u>. A goal suggests that it may or may not be achieved. The language of the proposal says, "... shrubs <u>shall</u> be returned to an average density of $1/m^2$...."

6. The proposal says, "In areas containing <u>critical</u> or <u>important</u> wildlife habitat...." It can be argued forcefully that the whole state of Wyoming is important wildlife habitat.

   a. "Critical" should be defined.
   b. Omit the word "important."

The basic problem with the shrub density proposal is that it is based on a faulty ecological premise. The proposal postulates that shrubs must be a particular density without knowing what is achievable. Experience gives strong indication that the proposed standard cannot be achieved. Does the DEQ have scientific field data to prove that their standard is attainable? If so, perhaps they would be willing to distribute the data for scrutiny by industry. If the DEQ does not have the data base to support their proposal, and if they really need a shrub density standard, I suggest that the DEQ allow industry some time to build a data base which would give credence to a desirable standard.

I see no reason for replacing one unachievable standard with another unachievable standard, even though the latter may be less stringent. If the desire is to resolve the issue, why don't you base the shrub density standard on <u>what is achievable</u> over five to ten percent of the reclamation area?

RECEIVED
LAND QUALITY DIVISION

Thunder Basin[illegible] al Company
P.O. Box 406
Wright, Wyoming 82732
Telephone 307 939 1300

August 12, 1983

Mr. Gary Beach
Wyoming Department of Environmental Quality
Land Quality Division
Equality State Bank Building
401 West 19th Street
Cheyenne, WY 82002

Dear Mr. Beach:

This letter supersedes Thunder Basin Coal Company's letter of July 28, 1983 and is written to respond to your request for comment on proposed modifications to shrub density regulation. Our July 28th position has been modified on the basis of the August 1, 1983 workshop and its resulting discussions.

We would like to encourage WDEQ/LQD to collect information on shrub densities currently being established on mined lands, using best available technology (BAT), prior to promulgation of new shrub density regulations. The current regulation approved in 1981 is too burdensome, both financially and technically. However, since new standards must eventually be developed, we have prepared comments on the WDEQ/LQD June 24, 1983 proposed regulation (see attachment). Our comments have been incorporated as proposed changes to that document.

COMMENTS:

1. Thunder Basin Coal Company is currently evaluating revegetation methods designed to establish a minimum shrub density of 4,000 plants per acre. However, we currently have no information to suggest that the long term establishment of 1 shrub per meter square can be achieved. For that reason we are proposing that a shrub density standard be developed on the basis of current revegetation data as proposed in the August 1, 1983 workshop. If a regulation must be developed before that information can be evaluated, we must propose the establishment of standards to allow for the present uncertainty associated with the establishment of dense shrub habitat.

2. We question the proposed density of one shrub per meter square on lands designated for wildlife habitat. Our position is based in part on literature cited by Mr. Pat Boles. On page 14 of "Shrub Density and Cover on Western Rangelands in Relation to Reclamation Standards for Coal Mined Lands in Wyoming" Mr. Boles suggests that the maximum shrub density being required in several western states to meet wildlife standards, was between



500 and 1,625 shrubs per acre, and that "closed" stands of big sagebrush could be obtained over time if shrubs were established approximately 30 feet apart (50 shrubs per acre). We question the proposed standard of 1 shrub per meter square when that standard represents an establishment level 2.5 - 8.0 times the recommended figures cited in the above literature.

3. Thunder Basin Coal Company also finds itself in the contradictory position of justifying the establishment of dense shrub habitat when the United States Forest Service is actively evaluating measures to reduce shrub cover on lands adjacent to the Black Thunder Mine.

4. Based on the first three comments, Thunder Basin Coal Company proposes that a density goal of approximately 1,350 shrubs per acre (1 shrub/$3m^2$) represents a more realistic and reasonable goal for areas to be reclaimed to wildlife habitat. We believe this goal can be realized utilizing current technology and proper range management techniques.

5. In the shrub density workshop held August 1, 1983 it appeared that the regulatory agencies, including Wyoming Game and Fish, would like to concentrate shrub establishment on 10 percent of total mine disturbance and perhaps reduce or delete a standard for grazing land. We propose the establishment of 1 shrub/$16m^2$ (250 shrubs per acre) on those lands to be utilized for livestock grazing. The establishment of 250 shrubs per acre would provide a seed source for establishment of dense shrub cover, through secondary succession, on those area's providing appropriate site conditions. The establishment of 250 shrubs per acre does represent an establishment level 5 times the number required to develop closed stand of big sagebrush (see comment number 2).

6. To provide for diverse wildlife habitat, we propose that the establishment of shrubs for wildlife habitat should be limited to 10 percent of total disturbed area, except on areas determined to contain critical wildlife habitat.

7. For purposes of clarifying the proposed shrub density standard, a clause should be included that describes what plant species will constitute a shrub in density calculations. We believe that all woody shrub species should be included in shrub density calculations because of the forage quality of many "half shrubs".

8. If "best available technology" (BAT) is the term defined in LQD regulations, that term should be used in the standard, rather than, "best technology currently available". (See LQD discussion in June 24, 1983 proposal - page 4).

9. There appears to be a contradiction in the proposed regulation and the "discussion" submitted by WDEQ/LQD (see page 4 of the June 24th proposal). If the purpose of the proposed regulation is to set a shrub density goal to be achieved through the use of BAT, then we propose the adoption of specific language to clarify that position. As the proposed regulation currently reads, the use of BAT is required to meet a very specific standard.

PROPOSED REGULATION
(significant changes from WDEQ/LQD's June 24th proposal have been underlined)

When wildlife habitat is part of the postmining land use, shrubs shall be established at an average density of 1/3m$^2$ (1350 plants/acre) on at least 10 percent of the affected lands and an average density of 1 shrub/16m$^2$ (250 plants/acre) on all remaining surfaces. Establishment of these densities shall be attempted through the use of best available technology (BAT). Taking into consideration both "availability and practicability" of current technology. Exceptions to lower this standard may be authorized where the baseline data shows a lower density.

In areas containing critical wildlife habitat, the Wyoming Game and Fish Department shall recommend specific reclamation goals for shrub density, not to exceed premining densities. The distribution of the higher shrub density areas will be determined on a site specific basis. Trees shall be returned to a density at least equal to that existing on the area before mining.

We appreciate the opportunity to comment on the proposed regulation and welcome those public conferences where meaningful input from industry is requested. Your consideration of our concerns and comments is appreciated.

Sincerely,

P.K. Carroll

P. Kim Carroll
Environmental Coordinator

PKC/db

Attachment

THE CARTER MINING COMPANY
POST OFFICE BOX 3007 • GILLETTE, WYOMING 82716 • (307) 682-6881

August 12, 1983

RE: Shrub Density Standard

Mr. Gary Beach
Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, Wyoming 82002

Dear Gary:

The Carter Mining Company personnel have reviewed the June 24, 1983 proposed shrub density standard and have developed the following recommended changes:

"When wildlife habitat is part of the post-mining land use, shrubs shall be returned to an average density of (1) 1 per 4m² on at least 10 percent of the (2) restored native rangeland and an average density of (1) 1 per 20m² on all remaining (2) restored native rangeland. Establishment of these densities shall be achieved through the use of (3) best available technology (BAT). Exceptions may be authorized where the baseline data shows a lower density. The distribution of the higher shrub density areas will be determined on a site specific basis. (4) Native trees shall be returned to a density at least equal to that existing on the area before mining. ( In area containing critical or important wildlife habitat the Wyoming Game and Fish Department shall recommend specific reclamation goals for shrub density and cover.")

Reasons for the recommended changes are as follows:

(1) The current methods for establishing shrubs are either extremely expensive or too inconsistent to establish the recommended goals of 1 per m² and 1 per 9m². If economical methods are developed, the Wyoming Game and Fish Department still has the option to specify special shrub density goals for critical areas. A density of 1 per 4m² will provide a source for the development of more dense shrub stands.



(2) The standard should only apply to native rangeland areas, not pasturelands, haylands, or croplands as implied with "all remaining surfaces".

(3) BAT is consistent with Land Quality Division regulations.

(4) It should not be necessary to restore the windbreaks of introduced tree species that existed prior to mining.

Sincerely,

Dennis R. McGirr

Dennis R. McGirr
Reclamation Coordinator

SUNEDCO COAL CO.
7401 W Mansfield Ave
Suite 418
Post Office Box 358
Lakewood CO 80235
303 989 9280

August 11, 1983

Mr. Gary Beach
Wyoming Dept. of Environmental Quality
401 West 19th Street
Cheyenne, Wyoming 82002

RE: Shrub Density Standard

We have received your June 24, 1983 letter concerning shrub density standards, and also attended the August 1, 1983 meeting where the standard was discussed. As you may know, we are very concerned about this standard as we have proposed wildlife habitat as a part of our postmining land use. We should begin by saying we understand the difficulty you face in arriving at a regulation which is acceptable to everyone involved. I would like to emphasize that we have two basic concerns when it comes to final reclamation. On the one hand, as a mining company we have an obligation to perform all of our activities in compliance with applicable laws and regulations with one of those obligations being to return the land to a condition similar to the premining conditions. On the other hand, we are the owner of the area being mined. As a private landowner, our approach to land management is no different than any other landowner in the area. Our goal is to maintain the land in the highest and best use available to us. Naturally enough, we take this into consideration in our reclamation plans and in the past, we have always identified wildlife habitat as a part of the postmining land use.

Because our permit area is approximately 8200 acres and we are not actively mining the entire area, a large portion of the unmined land is currently being used for grazing. As stated earlier, we always thought it advisable to identify at least a portion of the postmining land as wildlife habitat and have intended so far to attempt some shrub planting to accommodate such a postmining land use. Up until now it has been relatively easy to reconcile any differences that we may have in our approach as a mine operator with those of a landowner. In fact, the two seem to run hand-in-hand.

The proposed regulations for shrub density have given us cause to look again at our approach to postmining land use. As an operator, it has been relatively easy to commit to a wildlife habitat use



because, in fact, the land will be used by wildlife whether or not we chose to designate it as such. The current interpretation of shrub density requirements has allowed us to replace some wildlife habitat and still maintain a high degree of agricultural use for the area. After thoroughly reviewing the proposed regulations, it appears that we could have reason to reconsider our reclamation approach. Because of these concerns, we are writing these comments on the proposed regulations.

Our understanding of the regulations, as written, is as follows: When an operator designates one of the postmining land uses as wildlife habitat, he will be expected to replace at least 10 percent of the affected lands (meaning the entire area which is mined) to a density of at least one shrub per square meter. The other 90 percent of the mined area must have an average of at least one shrub per nine square meters. Unfortunately, the establishment of these densities will have the long-term effect of creating an almost total use of wildlife habitat, particularly in the sagebrush areas. Our understanding of this regulation is that some shrubs must be planted over the entire mined area and the densities differ only between the 10 percent and the 90 percent.

The proposed regulation then says, "Densities shall be achieved through the best technology currently available." To discuss for a moment one shrub which is commonly found in our permit area, big sagebrush, there has been a considerable amount of research done in the west regarding sagebrush (including on our own Big Horn Ranch near Buffalo) and it is fairly well proven that good sagebrush stands cannot be established by broadcast or drill seeding. Most certainly the density on the 10 percent area cannot be established within ten years by these methods of seeding. This leads us to conclude that containerized plantings must be used at great expense and even then we may not be able to achieve the required density. As you can well imagine, we have attempted to identify the expense which would be incurred by such a planting. Our calculations are as follows:

7390 acres anticipated disturbance

739 acres = 10% of total disturbed area

$$739 \text{ acres } \frac{(4047 \text{ M}^2)}{\text{Acre}} = 2{,}990{,}733 \text{ plants}$$

Cost $1.79 per seedling = $5,353,412

A similar expense would be experienced on the other 90 percent even though the density is approximately 1/9th of the above density, the area is 10 times as large. In effect, we would be looking at approximately $10,000,000 (assuming a 100% success rate) to reclaim our mined area to "wildlife habitat". In fact, it might cost two or three times this amount. This has lead us to look at the

propriety of such a postmining land use. We are quite understanding of the need for some wildlife habitat and we are also extremely conscious of our desire to maintain our land in its highest and best form. As a matter of policy, our company is committed to ranching as the highest and best use of the land for postmining land use and we have been able to justify inclusion of some wildlife habitat. To comply with the proposed regulations would be quite burdensome and it would, in effect, reduce the value of the land. Therefore, we feel that if the regulations are passed in their proposed form we would have no choice but to change our postmining land use under Chapter IV (2) a (2) from wildlife habitat to a "higher and better use".

In particular, we are concerned about having to put back any of the several species of sagebrush. Because the control of sagebrush has been such a major concern in the west, we feel an obligation to severely limit our replacement of sagebrush as a reclamation crop. As a landowner, we do not feel this would constitute a good land management practice and question whether it would be in the long-term best interest of the region to do so.

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The memo of June 24, 1983, states that the LQD regulations take economics into consideration under the definition of "best technology currently available". In reading those regulations we do not interpret the language to mean that the administrator must consider economics. Perhaps some language could be added to the proposed shrub density regulation to clearly state this requirement.

In summary, while we appreciate the need for return to wildlife habitat we are concerned about the apparent stringency of the proposed standard. If passed in its currently proposed form, we may have to consider deleting wildlife habitat from our postmining land use.

Thank you for the opportunity to comment. We look forward to further discussions on this topic.

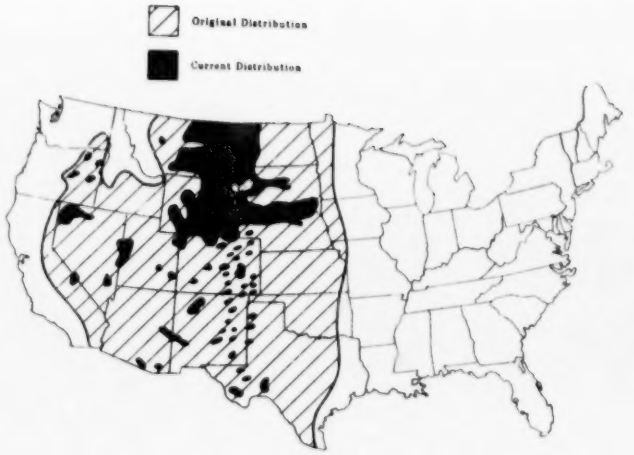
Sincerely,

Gerald T. McPhee

Gerald T. McPhee
Manager, Permits & Environmental Compliance

GTM:mdn

PETITIONERS' EXHIBITS PRESENTED AT THE JANUARY 23 - 24
RAWLINS HEARING




**ANTELOPE**

Source: Wyoming Game & Fish Department

Exhibit 1

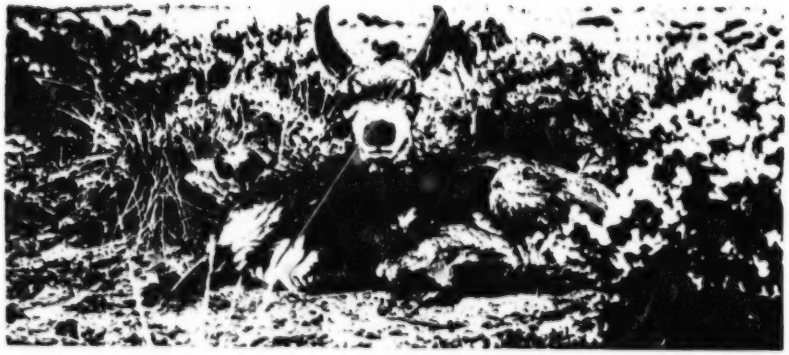


Exhibit 2

Pronghorn fawns in sagebrush habitat

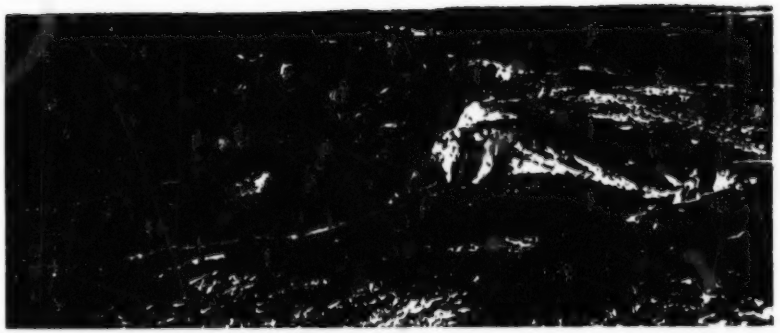


Exhibit 3

Overview of Red Rim pronghorn critical winter range

Exhibit 4

Red Rim pronghorn critical winter range affords pronghorn with both forage and cover

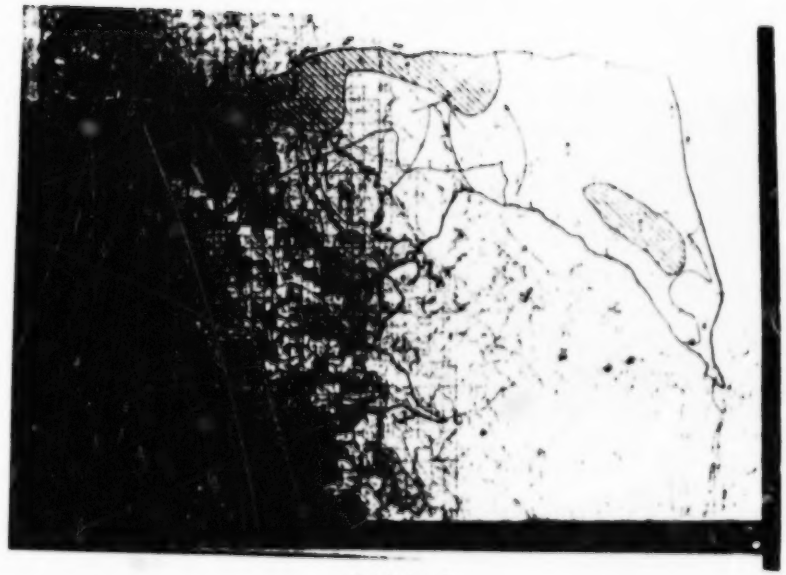


Exhibit 5

Pronghorn critical winter range, Baggs Herd Unit

Exhibit 6

During heavy snow winters, pronghorn must have forage available above the snow

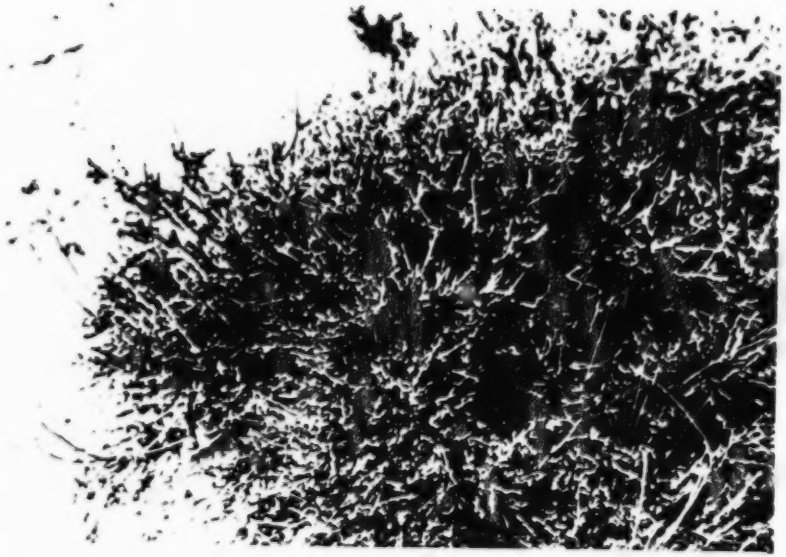


Exhibit 7

Restricted winter ranges limit forage availability and vegetation overuse can result as indicated by this heavily browsed sagebrush

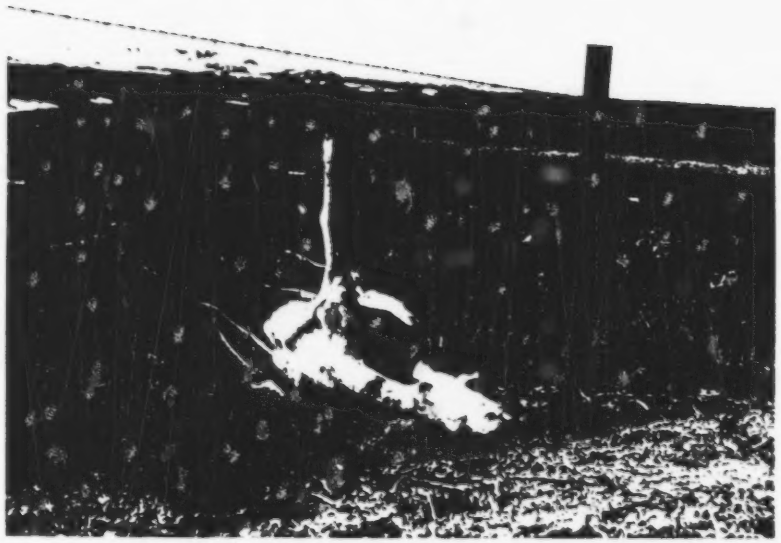


Exhibit 8

Fences may induce additional mortality in pronghorn

Exhibit 9

In severe winters pronghorn mortality may be heavy if suitable winter areas are not available

# WINTER DIET OF PRONGHORN IN THE GREAT DIVIDE BASIN, WYOMING.

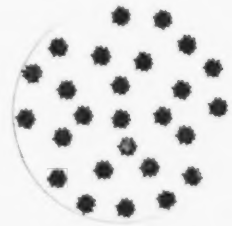
Exhibit 10

- Winter diets of pronghorn in the Great Divide Basin, Wyoming



## RED RIM BIG SAGEBRUSH DENSITIES

- Average existing premining vegetation = 7144 shrubs/acre
  or
  1 big sagebrush per 0.6 square meters

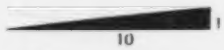
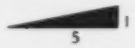


- PEDIS Scenario 1 postmining goal = 2500 big sagebrush/acre
  or
  1 big sagebrush per 1.7 square meters

- Coal Companies' estimates of currently technically feasible densities postmining = 714 shrubs/acre
  or
  1 big sagebrush per 6 square meters
  *But*
  - ***Not attainable within 10 years***
  - ***Not economically feasible***
  - ***Not for steep slopes***
  - ***Includes other species easier to establish***

Exhibit 11

## Red Rim Slopes Compared To Reclaimed Western Surface Mine Slopes

| SLOPE | EXAMPLE |
|---|---|
| 1:10 10%   | Typical postmining slope at many western mines, for instance, at the Seminoe Mines in the Hanna Basin. Can use standard revegetation techniques. |
| 1:5 20%   | Considered as steep postmining slope. Reclaimed only in special situations, such as the reconstructed drainages at the Western Energy Company Rosebud Mine at Colstrip Montana. Difficult to revegetate. If steeper, agricultural equipment becomes dangerous to use. |
| 1:3 33% | Slopes greater than this can only be revegetated with very specialized equipment. Maximum slopes recommended for topsoil stockpiles in Wyoming. |
| 1:2.5 40% | Typical Red Rim slopes with available pronghorn winter forage. No surface coal postmining revegetation attempted to date. |

*Summary Comparison of 1:10 with 1:2.5 slopes.*

Exhibit 12

Wyoming Wildlife Federation
P.O. Box 106, Cheyenne, WY 82003
307-637-5433

February 7, 1985

John Crow
Hearing Officer
Environmental Quality Council
122 West 25th Street
Herschler Building
Cheyenne, WY 82002

Dear Mr. Crow:

I appreciate the opportunity you gave me to testify on behalf of the unsuitability designation for Red Rim. Following my brief testimony, I was asked questions concerning the number of letters the Federation had received from residents of Carbon County. Since we had not compiled all the responses, I was unable to answer accurately.

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I enclose, for your consideration, copies of the responses we received from residents of Carbon County. These total 131 persons.

Thank you for your comment.

I also enclose some of the other comments we have received here at the office. Please consider these as individual written comments on the unsuitability designation.

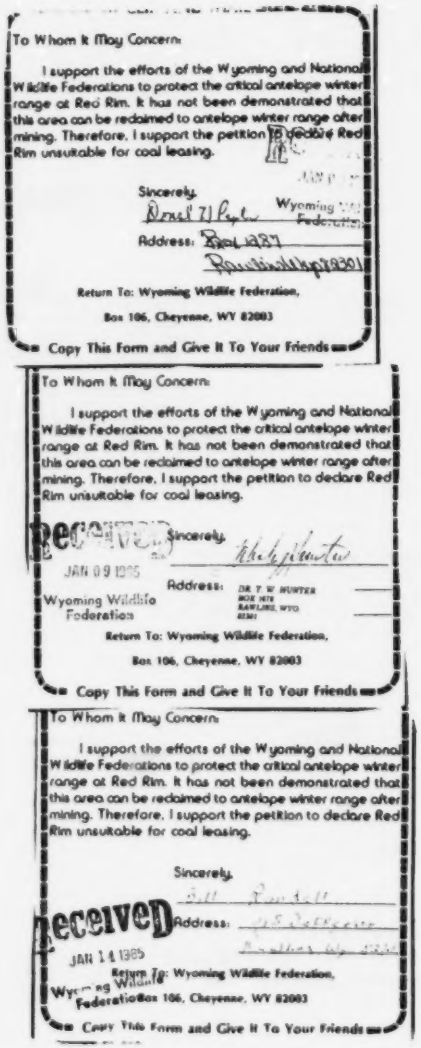
In addition, the Federation received approximately 224 responses to a clip-and-mail form we included in the January issue of our monthly newspaper, The Pronghorn. A sample of that form is enclosed. Thank-you for accepting these comments.

Sincerely,

John P. Ernst

John P. Ernst
Executive Director

JPE/wp
Enclosures



To Whom It May Concern:

I support the efforts of the Wyoming and National Wildlife Federations to protect the critical antelope winter range at Red Rim. It has not been demonstrated that this area can be reclaimed to antelope winter range after mining. Therefore, I support the petition to declare Red Rim unsuitable for coal leasing.

Sincerely,

Address:

Return To: Wyoming Wildlife Federation,

Box 106, Cheyenne, WY 82003

Copy This Form and Give It To Your Friends

To Whom It May Concern:

I support the efforts of the Wyoming and National Wildlife Federations to protect the critical antelope winter range at Red Rim. It has not been demonstrated that this area can be reclaimed to antelope winter range after mining. Therefore, I support the petition to declare Red Rim unsuitable for coal leasing.

Received JAN 09 1985 Wyoming Wildlife Federation

Sincerely,

Address: DR. T. W. HUNTER BOX 1678 RAWLINS, WYO 82301

Return To: Wyoming Wildlife Federation,

Box 106, Cheyenne, WY 82003

Copy This Form and Give It To Your Friends

To Whom It May Concern:

I support the efforts of the Wyoming and National Wildlife Federations to protect the critical antelope winter range at Red Rim. It has not been demonstrated that this area can be reclaimed to antelope winter range after mining. Therefore, I support the petition to declare Red Rim unsuitable for coal leasing.

Sincerely,

Received JAN 14 1985 Wyoming Wildlife Federation

Address:

Return To: Wyoming Wildlife Federation,

Box 106, Cheyenne, WY 82003

Copy This Form and Give It To Your Friends

## CLIP AND MAIL

To Whom It May Concern:

I support the efforts of the Wyoming and National Wildlife Federations to protect the critical antelope winter range at Red Rim. It has not been demonstrated that this area can be reclaimed to antelope winter range after mining. Therefore, I support the petition to declare Red Rim unsuitable for coal leasing.

Sincerely,

Address:

Return To: Wyoming Wildlife Federation,

Box 106, Cheyenne, WY 82003

Copy This Form and Give It To Your Friends

January 16, 1985

To Whom It May Concern:

Gentlemen, it is regrettable the Red Rim is challenged by a greedy company for a fast dollar which would leave this great American heritage, the Red Rim virtually destroyed beyond the foreseeable future of the destiny of man upon this earth. It is clearly seen and understood, by all that the coal under Rim will never be needed by this culture for as long as it shall exist. This kind of greed by corporations is no longer sufferable by we, the American people. The time has come for us to preserve our inalienable, inherent and constitutional rights by legally correcting our political system.

Red Rim, a great gift of God, in its natural state and beauty properly managed and protected and harvested, will provide food and other valuable gifts for a far longer period of time than all the coal in this earth, and by the same divine providence as our forefathers.

Laides and gentlemen, all together, I for one believe we can by reasoning preserve the great gift of our God for a long time. May we all pray for guidance then do just that. Then we can all enjoy the blessings of the great gift.

Gentlemen, I just wanted to express my views on all such matters and hope this is not out of line or budensome. This kind of problem is of grave concern.

George A. Blankenship
P. O. Box 9481
Tulsa, Oklahoma 74157

George A. Blankenship

Thank you for your comment.

1827 Ord, Laramie, WY 82070.
12 January 1985.

TO WHOM IT MAY CONCERN:

Subject: Red Rim Coal Leasing

Both of us are long time Wyoming residents, are ardent outdoor enthusiasts with much experience in outdoor Wyoming in its forests and on its plains and we think we understand to considerable depth many of the problems facing efforts to protect Wyoming's wildlife.

We earnestly support the efforts of the Wyoming and National Wildlife Federation to protect the critical winter antelope range at Red Rim. Clearly, it has not been shown that this area could be reclaimed to antelope winter range after mining the coal. Reclamation to us would mean restoration of the surface to its original condition AND return of the herd in viable condition in substantially the same numbers now existing AFTER a prolonged absence and profound disruption in herd habits. This and future generations on this planet cannot afford to gamble with the future of this herd.

Therefore, we support the petition to declare Red Rim unsuitable for coal leasing now or at any time in the future.

Respectfully submitted,

Leslie L. Britton
Wyoming Resident since 1952.

Ruth G. Britton
Wyoming Resident since 1924.

Thank you for your comment.

Mr Burgess
We collected numerous
amount of signatures to help
you with the cause We think
you and the federation are
doing a good job representing
the people and the wildlife
If we can be of any further
help to you, let us know.

thanks
Ken Turk.

Thank you for your comment.

December 28.1984

We the undersigned wish to show our support to the Wyoming Wildlife Federation in their efforts to stop Mr. Taylor Lawrence with his coal mining efforts on the valuable winter range"Red Rim ".

We feel that Mr. Lawrence,-federal leases should be canceled,We dont think anyone who would purposely starve Wyo.wildlife,should be able to make a profit of any kind at the expense of the antelope and their winter range.

With the killing of the Antelope last year.We the people of Wyoming feel soon there wont be any wildlife in the state. + ~~should be put on~~ peoples

~~Yours in Rawlins, Hunks~~

| | |
|---|---|
| Kenneth E. Funk | Rawlins, Wyo |
| Gilberta L. Funk | 216 E Maple, Rawlins, Wyo. |
| Lois M. Funk | 201 W. Larsen Rawlins, Wyo. |
| Dorothy W. Peterson | 816 12th Rawlins Wyo. |
| [illegible] | 609 Daley Rawlins Wyo |
| Ken Fulkerson | 212 LAFALOMA RAWLINS WYO. |
| Jerry Cisneros | 315 E. Buffalo Rawlins, WYO |
| Brigitte Cisneros | 315 E. Buffalo Rawlins, Wyo |
| [illegible] | 307 Silver Rock Spr. Wyo. |
| J F Hall | 1221 Weaver St Rawlins, Wyo |
| E. R. Bledna | Box 1357 Rawlins, Wyo. |
| R. L. Marison | Box 1246 Rawlins Wyo |
| J. F. Boots | Box 1612 Rawlins, Wyo |
| Ed Martin | 2022 Happy Hollow Rawlins Wyo. |
| [illegible] | 101 J.W. Ct. Cheyenne, Wy |

| | |
|---|---|
| Jerry Massaneau | 721 Pershing Rawlins, WY |
| Sally Koontz | 143 ~~Sonora~~ Rawlins Wy. |
| N. A Williams | 713 Pearl ct Cheyenne, Wyo |
| [illegible] | Fort Steele Wyo 82301 |
| [illegible] | BOX 1373 Rawlins, Wy |
| [illegible] | |
| Clifford Deist | 518 E. Walnut St Rawlins, W |
| | 1310 Alpha Rawlins, Wyoming |
| [illegible] | [illegible] |
| R. W. Williams | 1313 Sigma Dr. Rawlins, Wyo - |
| [illegible] | 1115 Vale Ave Rawlins, Wy |
| [illegible] | 4311 E 6th St Cheyenne, Wyo |
| [illegible] | 340 Del Salerno, Rawlins, Wyo. |
| [illegible] | 312 E State St. Rawlins, Wyo |
| Thom Parkinson | Box 2181 Rawlins, Wyo. |
| Dee Nelson | 619 W Davis Rawlins |
| John Mercer | 313 MAHONEY RAWLINS, Wyo |
| [illegible] | 513 E Maple Rawlins Wy 82301 |
| R. E. [illegible] | FT. Steele Dr. Rawlins Wy 82301 |
| [illegible] | 522 11th RAWLINS WYO 82301 |
| [illegible] | 1166 Mt. View Blvd Rawlins Wyo 82301 |
| P. Stulz Jr. | 2208 Park Ave, O.V. Cheyenne, Wyo. 82007 |
| [illegible] | 807 Neiman |
| D B Beck | 1016 Hanchman Sp 34 Rawlins, Wy |
| K K Wilcox | 119 E Lawson Rawlins, WYO |
| [illegible] | 120 W Pine RAWLINS |

| | |
|---|---|
| [illegible] | P.O. Box 1691 Rawlins, Wyo 82301 |
| [illegible] | N.E. of Saratoga, Box 159 |
| [illegible] | 4311 [illegible] Cheyenne 82001 |
| Frank A. Henderson | Willow Hill Rawlins Wyo. |
| [illegible] | Heathland Hill Trailer Court #16 Rawlins Wy 82301 |
| G.S. Iverson | 45 Ryan St. |
| [illegible] | 207 W. Tower Rawlins, Wyo |
| [illegible] | 202 E. Spruce Rawlins, Wyo. |
| [illegible] | 403 Ryan St. Rawlins, Wyo |
| [illegible] Martinez | 720 W. State Rawlins, Wy. |
| [illegible] Carroll | 216 1st St, Rawlins, Wyo. |
| J. N. Connor | 621 6th St Rawlins Wyo |
| [illegible] Walker | Box 1904 Rawlins Wyo |
| [illegible] | P.O. Box 374 Rawlins Wy |
| [illegible] | Highland Hill Trl Ct #16 Rawlins Wy |
| [illegible] | 1003 [illegible], Rawlins, Wyo |
| [illegible] | [illegible] Cheyenne Wyo. |
| Louis Eysinger | 302 McKinley Rawlins Wyo. 82301 |
| R.L. Dunivent | 2757 Deming Cheyenne Wyo 82001 |
| Lucrecio Pozzoli | P.O. Box 729 Rawlins, Wyo 82301 |
| George Watson | 1016 - 8th St Rawlins. Wy. 82301 |
| R.A. Goode | 5321 Greybull Ave. Cheyenne, Wy. 82009 |
| [illegible] | 305 7th Sinclair Wyo |
| [illegible] Cruz | 219 Pershing St. Rawlins Wyo. 82301 |

| | | | |
|---|---|---|---|
| W. R. Smith | 1212 Mitchell, | Laramie, Wy | 82070 |
| R W Duncan | 1914 INVERNESS | RAWLINS Wyo | 82301 |
| [illegible] | [illegible] | [illegible] Wy | — |
| C. R. McPherson | 605 Monroe | Rawlins, Wyo. | 82301 |
| J. E. Hayden | 8111 Yarina | Cheyenne, Wy. | 82009 |
| B A Levengood | 1010 CAHILL | Cheyenne Wy | 82001 |
| [illegible] | 223 West State | Rawlins Wy. | 82301 |
| Gary Payne | 7403 San Mateo Pl. | Chey. Wy. | 82009 |
| Gary Cooper | 3674 Cessna Ln | Chey Wy | 82009 |
| Fanny Grant | 1167 [illegible] | Chey Wyo | 82001 |
| [illegible] | 2217 Box 1730 | Chey WYO | 82001 |
| [illegible] Mascarenas | 304 Monroe | Rawlins Wy. | 82301 |
| [illegible] | 1532 [illegible] | Cheyenne Wyo | 82001 |
| V. S. D. Whitfield | 110 E. Cedar | Rawlins, Wy. | 82301 |
| [illegible] | 803 High St. | Rawlins, Wyo. | 82301 |
| Thomas H. Toth | 2002 Inverness Blvd | Rawlins, Wyo. | 82301 |
| [illegible] | 2324 Inverness | Rawlins, Wy | 82301 |
| V. J. Vigil | 4303 EVERTON Dr. | Cheyenne, Wy. | 82009 |
| Valerie Nelson | Box 523 | Rawlins, Wyo. | 82301 |

December 28.1984

We the undersigned wish to show our support to the Wyoming Wildlife Federation in their efforts to stop Mr. Taylor Lawrence with his coal mining efforts on the valuable winter range"Red Rim ?

We feel that Mr. Lawrence's federal leases should be canceled,We dont think anyone who would purposely starve Wyo.wildlife,should be able to make a profit of any kind at the expense of the antelope and their winter range.

With the killing of the Antelope last year,We the people of Wyoming feel soon there wont be any wildlife in the state.

| NAME | ADDRESS | STATE |
|---|---|---|
| [illegible] | Box 593 | Saratoga, Wyoming |
| [illegible] | Bx 593 | Saratoga, Wyo |
| John Bergeson | Box 374 | Encampment Wyo |
| Bob Bergeson | Box 684 | Encampment Wyo |
| A.J. Maddox | Box 65 | Saratoga Wyo. |
| Diana Kutschman | Box 493 | Encampment Wy. |
| Allan Harris | Box 1762 | Saratoga Wy |
| [illegible] | Box 1733 | Saratoga, Wy. |
| [illegible] | Box 1661 | Saratoga, Wy |
| [illegible] McCallahan | Box 36 | Saratoga Wy |
| [illegible] | Box 304 | Encampment, Wy 82325 |
| [illegible] | Bx 1070 | Saratoga, Wy 82331 |
| [illegible] McCartney | Box 1392 | Saratoga, Wyo. 82331 |
| [illegible] | Box 1476 | Saratoga, Wy. 82331 |
| [illegible] | Box 541 | Saratoga, Wyo. 82331 |

December 28.1984

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With the killing of the Antelope last year.We the people of Wyoming feel soon there wont be any wildlife in the state.

| | |
|---|---|
| [illegible] | Sinclair Wyo |
| [illegible] | Rawlins Wyoming |
| [illegible] | |
| [illegible] | BAINGINS, INX |
| [illegible] | Rawlins Wy |
| [illegible] Fagerty | Rawlins Wy |
| [illegible] | [illegible] |
| [illegible] | " " |
| [illegible] | |
| [illegible] | Sinclair Wyo |
| [illegible] | Rawlins, Wyo. |
| [illegible] | Rawlins, Wy. |
| [illegible] | Rawlins Wyo |
| [illegible] | Rawlins Wyo |
| [illegible] | |
| [illegible] | Rawlins Wyo |
| [illegible] | |
| [illegible] | Rawlins Wyo |
| [illegible] | Rawlins Wyoming |
| [illegible] | Rawlins, Wy. |
| [illegible] | Rawlins, Wyoming |
| [illegible] | Rawlins, Wyo |
| [illegible] | Rawlins, Wy. 82301 |
| [illegible] | Ruth Urban |
| [illegible] | Rawlins Wyo |
| Bell Gruver | Rawlins, Wyo. |

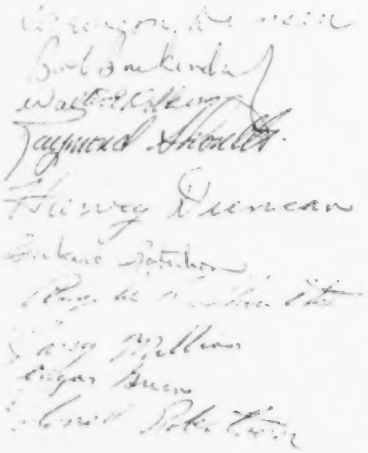
[illegible] Rawlins Wyo.
[illegible] Rawlins Wyo.

TO WHOM IT MAY CONCERN:

WE SUPPORT THE EFFORTS OF THE WYOMING AND NATIONAL WILDLIFE FEDERATIONS TO PROTECT THE CRITICAL ANTELOPE WINTER RANGE AT RED RIM. IT HAS NOT BEEN DEMONSTRATED THAT THIS AREA CAN BE RECLAIMED TO ANTELOPE WINTER RANGE AFTER MINING. THEREFORE, WE SUPPORT THE PETITION TO DECLARE RED RIM UNSUITABLE FOR COAL LEASING.

SINCERELY,

HANNA SPORTMEN CLUB MEMBERS



Thank you for your comment.

Cheyenne, Wyo.
1/8/85

To Whom It May Concern:

I wish to state that I support the efforts of the Wyoming Wildlife Federation and the National Wildlife Federation to protect the critical antelope winter range at Bell Flat. It has not been demonstrated that this area can be reclaimed to antelope winter range after mining. Therefore, I support the petition to declare Bell Flat unsuitable for coal leasing.

Thank you for your comment.

Thankyou;

Keith R. Neville
4706 Crystal
Cheyenne, Wyo. 82001

257

Laramie, Wyo.

1/8/85

[illegible]

We support the efforts of the Wyoming and National Wildlife Federations to protect the critical antelope winter range at Red Rim. It has not been demonstrated that this area can be reclaimed as antelope winter range after mining. Therefore, we support the petition to declare Red Rim unsuitable for coal leasing.

Sincerely,

Paul J. McAuslan
P.O. Box 1404
Laramie Wyo 82070

Patricia Gibbs
1207 Shields
Laramie Wy 82070

Myron M Henner
4746 E.S.L. #84
LARAMIE WYO. 82070

Gay Richard
320 ARTHUR
Laramie, Wyo 82070

Jim Malin
419 GRANT
LARAMIE, WYO 82070

Richard G. Nottage
1420 Fetterman Dr.
Laramie Wyo. 82070

Gary J. McQuad
2841 Sage drive
Laramie, Wyo.

Robert Brandon
Coalmont Route
Laramie Wyo.

Thank you for your comment.

January 25, 1985

Mr. John Crow,
Hearing Officer
Wyoming Environmental Quality Council
122 W. 25th St.
Herschler Building
Cheyenne, WY 82002

Dear Sir:

We, as taxpayers in Carbon County, are definitely opposed to coal mining in the Red Rim Area.

The attorney for Taylor Lawrence stated some ambiguous dollar amounts that supposedly would help generate the economy of Rawlins. We feel that the antelope that were lost in 1984, because of Mr. Lawrence's disregard for wildlife needs, clearly has a negative effect on the attorney's flowery economic development. It is apparent that neither the attorney or Mr. Lawrence have a conscience except to fill their own pockets no matter the cost.

Sincerely,

Thank you for your comment.

January 14, 1935

Wyoming Environmental Quality Council

We have seen first hand the small number of antelope left in the area south of Red Rim, after the antelope-proof fence and the severe winter of 1983-84. We find it hard to believe that any agency of our government would allow such devastation of any wildlife.

With so much coal in this country, where mining would not cause such impact, we ask that Red Rim be declared unsuitable for mining, and removed from further consideration.

We feel that Red Rim is critical winter range for antelope, and should be protected as such.

Sincerely,

A. Harvey Purcella
Margaret M Purcella
Seth H. Purcella
Nancy Purcella

A. Harvey Purcella
Margaret M. Purcella
Seth H. Purcella
Nancy L. Purcella
3356 Coffeen Ave.
Sheridan, Wy. 82801

280

Thank you for your comment.

CECIL R. SUIT, POTENTATE
[illegible]

LYNN D. WHITESIDES
CHIEF RABBAN
[illegible]

WILLIAM A. FROELICH
ASSISTANT RABBAN
BENJAMIN KALAN, M.D.
HIGH PRIEST & PROPHET
DERRICK PAINE, JR.
ORIENTAL GUIDE
ALBERT J. GREENBERG P.P.
TREASURER

Al Malaikah Temple

Ancient Arabic Order Nobles of Mystic Shrine

OASIS OF LOS ANGELES, CALIFORNIA 90007

KENNETH H. BOUCHER, P.P. RECORDER
005 WEST JEFFERSON BOULEVARD
LOS ANGELES, CALIFORNIA 90007
(213) 748-0173

1-15-85

Sir.

I support the efforts of the Wyoming & National Wildlife Federation to protect the critical antelope winter range in Red Rim.

The antelope is a beautiful one of a kind animal. The Red Rim is so very important to the protection of this great animal. Please try to do all you can to see that the Red Rim is protected.

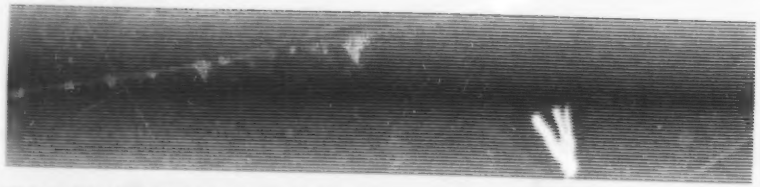
Thank You

Gary Hernandez
17756 E. Brookport Dr.
Azusa, Calif. 91702

Thank you for your comment.

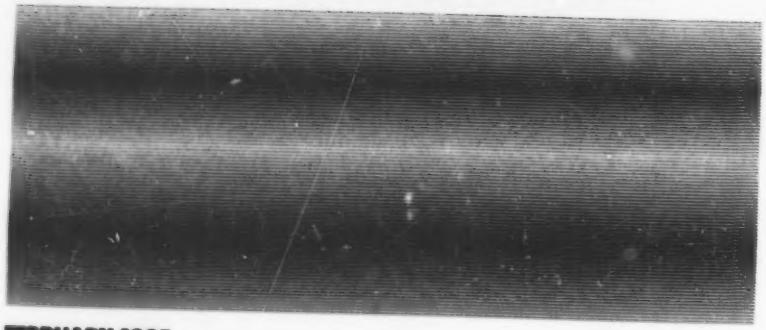
ROCKY MOUNTAIN ENERGY

A Subsidiary of Union Pacific Corporation
10 Lungo Pine Drive
Box 2000
Broomfield, Colorado 80021



# RED RIM UNSUITABILITY PETITION HEARING

## TESTIMONY AND COMMENTS



FEBRUARY, 1985



ROCKY MOUNTAIN ENERGY

February 6, 1985

Mr. Allen Klein
Western Technical Director
Office of Surface Mining
1020 15th Street
Denver, Colorado 80202

Dear Mr. Klein:

The National Wildlife Federation and the Wyoming Wildlife Federation submitted a petition to the Wyoming Department of Environmental Quality requesting the Environmental Quality Council to designate an area near Rawlins, Wyoming, known as Red Rim, as unsuitable for surface coal mining. Rocky Mountain Energy Company, which owns roughly half of the mineral rights in the area covered by the petition, takes strong exception to its allegations.

In both their written submittals and oral testimony, the petitioners, apparently not understanding how a new mine would be developed in the area, have misstated the impacts that could be associated with a mine in the area and have completely ignored steps which would not only be taken by any prudent operator, but would be required by the BLM, OSM, and Wyoming DEQ to mitigate antelope impacts. Further, they have completely failed to make any convincing argument that reclamation is not feasible. In fact, their reclamation allegations are completely inconsistent with specific reclamation tests which have actually been conducted on the Red Rim tract.

Rocky Mountain Energy presented oral testimony in support of its position at the EQC/OSM hearing in Rawlins on January 23 and 24, 1985. We are pleased to submit our overall comments for the record. Our comments are divided, for ease in reading, into three sections:

1. Counsel Comments:

   A summary of RME's position by counsel D. Freudenthal.

2. Oral Testimony:

A written copy of the RME hearing presentation. This section is divided with a separate section for each of the three RME representatives who presented testimony.

3. Written Testimony:

During the Rawlins hearing, several questions and issues arose to which RME was asked to respond in its written comments. This section addresses these issues in a "question and answer" format. All questions are listed at the beginning of the section on page 20. The corresponding page number for the answer is also noted. There are three subsections (Wildlife, Reclamation, and Mine Planning) which divide the questions into general categories.

We at Rocky Mountain Energy appreciate this opportunity to express our views on the suitability of Red Rim for coal mining. We strongly believe that unless the petitioners prove that there is no acceptable Red Rim development alternative, mineral owners should be given the opportunity to develop mine plans which can then be analyzed in detail for compliance with SMCRA. We believe the petitioners have failed to provide factual support for their allegations, and that the petition should, therefore, be denied. RME research and data gathered to date, while admittedly not yet adequate for a detailed mine plan, show clearly that viable reclamation and wildlife impact mitigation options are available for Red Rim.

We stand ready to answer any questions that may develop during your review. I can be reached at (303) 469-8844.

Sincerely,

James W. Shaw
Manager
Coal Development

Attachment

cc: Mr. John Crow, EQC



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| | | |
|---|---|---|
| WYOMING ENVIRONMENTAL QUALITY COUNCIL<br><br>and<br><br>U.S. DEPARTMENT OF THE INTERIOR, OFFICE OF SURFACE MINING | ) | IN THE MATTER OF DESIGNATING A 20,480 ACRE TRACT KNOWN AS "RED RIM," AS UNSUITABLE FOR SURFACE COAL MINING OPERATIONS |

FINAL COMMENTS BY

ROCKY MOUNTAIN ENERGY COMPANY

COMES NOW Rocky Mountain Energy Company ("RME" and "Rocky Mountain Energy"), by and through its attorneys, to hereby submit additional comments pursuant to the public notice issued by the Office of Surface Mining and the Wyoming Environmental Quality Council.

1. What is the Impact of Designating an Area as Unsuitable for Surface Mining?

During the course of the hearing in Rawlins, it was suggested that the Red Rim area could be designated as unsuitable and then the designation could be reconsidered at the time of the submittal of an application for a permit to mine. Such a procedure is contrary to the Wyoming Environmental Quality Act (WEQA) and the Surface Mining Control and Reclamation Act (SMCRA). Under the WEQA and SMCRA, it is a pointless exercise to submit a mine plan that includes a

designated area or even an area under administrative review for possible designation.

The WEQA provides:

> (a) The applicant for a surface coal mining permit has the burden of establishing that his application is in compliance with this act and all applicable state laws. No surface coal mining permit shall be approved unless the applicant affirmatively demonstrates and the administrator finds in writing:
>
> (i) The application is accurate and complete;
>
> (ii) The reclamation plan can accomplish reclamation as required by this act;
>
> (iii) The proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area;
>
> (iv) The area proposed to be mined is not included within an area designated unsuitable for surface coal mining pursuant to W.S. 35-11-425, within an area where mining is prohibited pursuant to section 522(e) of P.L. 95-87 [30 U.S.C. § 1262(e)] or within an area under review for this designation under an administrative proceeding, unless in such an area as to which an administrative proceeding has commenced pursuant to W.S. 35-11-425 of this act, the operator making the permit application demonstrates that, prior to January 1, 1977, he has made substantial legal and financial commitments in relation to the operation for which he is applying for a permit;.... (Emphasis added).

W.S. 35-11-406(n). (Parallel language in SMCRA: 30 U.S.C.A. 1260(b)(4)).

Under this language, it would be a waste of money and effort to invest time and resources in the preparation of an application for a permit to mine within an area designated as unsuitable for surface coal mining.

Once an area has been designated as unsuitable for mining, a separate administrative proceeding is required prior to terminating such designation. The termination of designation proceeding is similar to this in terms of timing, hearings, etc. However, the Land Quality Division Regulations require that a petition to terminate a designation include materials not required in a petition to designate. See: Wyoming Land Quality Division Regulations (1983), Chapter XVIII, pp. 153, 154.

A designation of lands unsuitable for surface mining places an almost insurmountable obstacle in the path of any efforts to devise a mine plan which would address the area in careful detail.

2. Is the Designation of this Area the Only Means of Protecting the Integrity of the Antelope Population in Southcentral Wyoming?

Several strategies, including mitigation, enhancement, reduced impacts through alternative mining techniques and selective mining within the Red Rim resource area were

discussed at the hearing. Each of these options would be fully explored during the development of a mining application and the review by various state and federal agencies. If the standards set forth in the statute and regulations could not be met, then no permit would issue.

The Wyoming Environmental Quality Act and Regulations are very specific about the protection of wildlife. The federal Surface Mining Control and Reclamation Act and the OSM regulations are also very specific. Because the State of Wyoming administers the coal program on both state and federal lands, this discussion focuses primarily on the applicable provisions of Wyoming law. In most instances, there are parallel provisions of federal law. In addition, the Fish and Wildlife Coordination Act (16 U.S.C. 661) gives the United States Fish and Wildlife Service particular status to impact decisionmaking by the Office of Surface Mining.

Attached to this submittal as Exhibit A is a copy of the Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 5, Wildlife. This is an 18-page document which supplements the extensive statutory and regulatory language. This document also recognizes the role of the Wyoming Game and Fish Department on page 1, where it states: "Alternate methods should be cleared with the Game and Fish Department or DEQ to avoid delays in permit approval."

The WEQA contains numerous provisions relating to reclamation, approximate original contour, vegetation and animal life. Generally, those provisions place significant burdens on the applicants for a permit to mine.

Typical of the provisions relating to wildlife is the following:

> (b) The application shall include a mining plan and reclamation plan dealing with the extent to which the mining operation will disturb or change the lands to be affected, the proposed future use or uses and the plan whereby the operator will reclaim the affected lands to the proposed future use or uses. The mining plan and reclamation plan shall be consistent with the objectives and purposes of this act and of the rules and regulations promulgated. The mining plan and reclamation plan shall include the following:
>
> . . . .
>
> (ix) A plan for insuring that all acid forming, or toxic materials, or materials constituting a fire, health or safety hazard uncovered during or created by the mining process are promptly treated or disposed of during the mining process in a manner designed to prevent pollution of surface or subsurface water or threats to human or animal health or safety. Such method may include, but not be limited to covering, burying, impounding or otherwise containing or disposing of the acid, toxic, radioactive or otherwise dangerous material; (Emphasis added.)
>
> . . . .
>
> (xiii) The procedures proposed to avoid constituting a public nuisance, endangering the public safety, human or

> animal life, property, wildlife and plant life in or adjacent to the permit area.... (Emphasis added.)

W.S. 35-11-406(b)(ix), (xiii).

The LQD Regulations with respect to wildlife are much more detailed. The following is a sample of the wildlife related regulations.

> In addition to that information required by W.S. 35-11-406(a), each application for a mining permit shall contain:
>
> (i) A detailed description of the lands to be affected within the permit area, how these lands will be affected, for what purpose these areas will be used during the course of the mining operation, and a time schedule for affecting these lands. This detailed description shall include a description of:
>
> . . . .
>
> (e) Indigenous wildlife
>
> (i) The operator shall submit a list of indigenous vertebrate wildlife species by common and scientific names observed within one (1) mile of the proposed permit area;
>
> (ii) Special attention shall be paid to the possible presence of wildlife on or adjacent to the proposed permit area which are listed on the 'Endangered Species List,' of the Wyoming Game and Fish Department.
>
> (iii) If significant habitat or migration route disruption is possible or likely, the Wyoming Game and Fish Department shall be contacted in order to determine the types and numbers of wildlife likely to be disturbed or displaced.

LQD Regulations, Chapter 2, Section 2.a(1)(e).

> In addition to that information required by W.S. 35-11-406(b), each application for a mining permit shall contain:
>
> . . . .
>
> (3) A plan whereby the operator will reclaim the affected lands to the proposed postmining land use in accordance with Chapter IV, Section 2.a., which shall include:
>
> (c) A plan to assure revegetation of all affected land in accordance with Chapter IV, Section 2.d., and, if applicable, Section 3.d. The plan shall include the method and schedule of revegetation, including but not limited to species of plants, seeding rates, seeding techniques, mulching requirements, and seeding times to be used in a given area for reclamation purposes. The standards and specifications adopted by the State Conservation Commission for mine reclamation shall be considered by the applicant during the preparation of the reclamation plan. Whenever practicable, the Wyoming Game and Fish Department and the Wyoming Department of Agriculture should be consulted regarding revegetation procedures.

LQD Regulations, Chapter 2, Section 2.b(3)(c).

> (6) A complete description of the proposed permit area which shall include:
>
> . . . .
>
> (e) Studies of fish, wildlife, and their habitats, in the level of detail and for those areas as determined by the

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administrator, after consultation with the Wyoming Game and Fish Department in accordance with the memorandum of understanding between the two agencies; and federal agencies having responsibilities for the management or conservation of such environmental values;

LQD Regulations, Chapter 2, Section 3.a(6)(e).

(4) A plan for minimizing adverse impacts to fish, wildlife and related environmental values within and adjacent to the permit area during the operation, including:

(a) Whether such resources will be enhanced through successful revegetation in accordance with Chapter IV, Section 3.p.;

(b) A statement of how the applicant will utilize impact control measures, management techniques, and monitoring methods to protect or enhance the following, if they are to be affected by the proposed operation:

(i) Threatened or endangered species of plants or animals listed by the Secretary under the Endangered Species Act of 1973, as amended (16 U.S.C. Section 1531, et seq.) and their critical habitats;

(ii) Species identified through the consultation process described in a.(6)(e) of this section;

(iii) Habitats of unusually high value for fish and wildlife, such as wetlands, riparian areas, rimrocks, areas offering special shelter or protection, reproduction and nursery areas, and wintering areas.

LQD Regulations, Chapter 2, Section 3.b(4).

In the event a mining permit applicant contemplates a reclamation plan which includes an alternative postmining land use, the application must include:

(iii) Approval of alternative land uses which shall require:

. . . .

(B) That the proposed use is compatible with adjacent land use and existing land use policies, plans and zoning. Written statements which express the view of land use planning agencies towards the change in land use shall accompany the proposal. The permittee shall obtain any required approval of local, state of federal land management agencies, including any necessary zoning or other changes required for the final land use;

. . . .

(H) Approval of measures to prevent or mitigate adverse effects on wildlife or fish have been obtained from appropriate state and federal fish and wildlife management agencies;

LQD Regulations, Chapter II, Section 3.b(12)(iii)(B) and (H).

All of these statutory and regulatory provisions provide built-in protection for the Red Rim area. These requirements and many more must be met prior to issuance of the public notice of a proposed decision to issue a permit. If the public notice stage is ever reached, the public, including the National Wildlife Federation, has the opportunity to file a protest and to block the issuance of a permit.

The WEQA clearly places the burden of demonstrating compliance with the act and regulations on the permit applicant. See: W.S. 35-11-406(n). A permit will not issue unless an applicant meets the affirmative burden of compliance with all applicable regulations, including those designed to protect wildlife and their habitat. The designation process is not the only or even an advisable means of protecting wildlife values in southcentral Wyoming.

3. Does the Statutory Language Provide a Guide for Decision-Making in this Area?

Several questions were raised during the hearing about the operation and meaning of the statutory language on designation. This part of the submittal attempts to respond to those questions.

The petition submitted on behalf of the National Wildlife Federation and Wyoming Wildlife Federal by a transmittal letter dated 7 May 1982 relies on two provisions of state law (see: W.S. 35-11-425(b)(ii)(B) and W.S. 35-11-425(b)(i)) and two parallel provisions of federal law. See: 30 U.S.C. 1272(a)(3)B and 30 U.S.C. 1272(a)(2).

General references to the unsuitability petition process refer to mandatory and permissive designation provisions. The mandatory reference is to the WEQA provision which provides:

> (b) If petitioned, the council will review the particular area and:
>
> (i) Shall designate it as unsuitable for all or certain types of surface coal mining operations if it is determined that reclamation pursuant to the requirements of this act is not technologically and economically feasible;

W.S. 35-11-425(b)(i). (Parallel SMCRA citation is 30 U.S.C. 1272(a)(2)).

By letters dated June 2, 1982 and July 26, 1982, the mandatory designation portion of the petition was denied by Wyoming Land Quality Administrator Walter C. Ackerman. An appeal of the denial was filed on October 12, 1982 by NWF/WWF. The appeal was dismissed for lack of jurisdiction upon motions filed by the Land Quality Division/Wyoming Attorney General's Office and Intervenor Taylor Lawrence. The decision of the Council was rendered after arguments by the parties on January 24, 1985. No action was taken by the Office of Surface Mining.

The state and federal provisions are parallel with slight language variations and adjustments to reflect the appropriate authority. The mandatory designation is intended to apply only if the regulatory authority "determines that reclamation pursuant to the requirements of this chapter [SMCRA] is not technologically and economically feasible."

Prior to a mandatory designation, the Office of Surface Mining must examine the particular area set forth in the petition. Based on that examination, OSM must

(1) determine that

(2) reclamation pursuant to the requirements of this chapter [SMCRA]

(3) is not

(4) technologically and economically

(5) feasible.

Most of these terms have definitions within the act and regulations. The emphasis here is on guaranteeing a decision-making process that carefully considers each statutory item.

The second basis for the Petition is the permissive portion of the statutes. The WEQA and SMCRA list four grounds for permissive designation. The NWF/WWF have chosen to rely on the fragile lands portion of the criteria. The NWF/WWF are bound by their choice of criteria.

The relevant provision of WEQA reads:

> (b) If petitioned, the council will review the particular area and:
>
> . . . .
>
> (ii) May designate it as an area unsuitable for surface coal mining if the coal operation will:
>
> . . . .
>
> (B) Affect fragile or historic lands in which these operations could result in significant damage to important historic, cultural, scientific and aesthetic values and natural systems;

W.S. 35-11-425(b)(ii)(B). (Parallel federal citation: 30 U.S.C. 1272(a)(3)(B).)

Once again, the statutory language provides a clear guide for decisionmaking. First, the Council and OSM must look at the particular area in making a decision. The petition has specified a 20,000-acre area in Wyoming. This is not an abstract discussion about antelope habitat in North America.

Based upon an analysis of the delineated area, the statutes set forth specific findings which must be made prior to deciding to designate. Furthermore, even if OSM and the Council find for the petitioner on each of the statutory criteria, they need not designate the area as unsuitable for surface coal mining. Under the cited provisions of both state and federal law, there is no obligation to designate. Such an action is entirely permissive and within the discretion of the council and OSM. However, a decision to designate places the decisionmaker under an obligation to make particular findings based on the evidence in the record.

In an unsuitability proceeding arising under the federal statute, the United States District Court in Utah stated:

> For example, if a determination of unsuitability is made under 30 U.S.C. § 1272(a)(3)(B), there must be a finding that affected lands are fragile or historic and that surface mining

operations would significantly damage the historical fragile aspects of the land.

Utah International v. Dept. of Interior of the U.S., 553 F. Supp. 872, 885 (D. Utah, C.D. 1982).

There is a lack of case law interpreting these provisions. As a general rule. lanugage in statutes is to be given its plain and ordinary meaning. Further, each phrase in the statute is presumed to have meaning. Using this as a guide, Rocky Mountain Energy offers the following analysis of the language for your consideration. References to "Webster" are to Webster's New Twentieth Century Distionary, Second Edition (Unabridged). Reference to "Black" refer to Black's Law Dictionary. For purpose of discussion, the statute has been divided into operative phrases.

(1) may: Refers to a permissive action, not required by law or rule. May is not generally viewed as a word of commmand. According to Webster, may: "(a) originally, ability or power: now generally replaced by can."

(2) designate it as an area unsuitable for surface coal mining

(3) if: In general the word if is used to imply a condition precedent. According to Webster, if: "(1) in case that; granting that; supposing that; allowing that."

(4) the coal operation: This does not refer to a particular mine plan. Clearly, there are surface coal mining techniques that could cause great harm to any area. This language, directs consideration of the coal operations including those that are properly done, with minimum impacts. As Rocky Mountain Energy suggested at the hearing, in order to make the determinations necessary for an unsuitability designation, the Council and OSM would have to conclude that all possible surface coal operations would lead to significant harm.

(5) will: According to Black, "an auxillary verb commonly having the mandatory sense of 'shall' or 'must.' It is a word of certainty, while the word 'may' is one of speculation or uncertainty." The OSM and the Council are certainly not bound by a criminal standard such as "beyond a reasonable doubt" in making their findings. However, there must be a substantial showing that a coal operation will in fact result in significant impacts. The mere speculation as to harm offered at the Rawlins hearing falls short of even a minimal standard.

(6) affect fragile or historic lands in which these operations could result in: Fragile lands are defined in the LQD Regulations at Chapter XVIII, Section 1(2). Prior to a designation, it must be determined that the lands are indeed fragile.

(7) significant damage: This refers to important, major, or meaningful destruction or reduction.

(8) to important ... natural systems: —

4. What are the Legal Implications of Unsuitability Designation on the Property Rights Within the Petition Area?

Direct Condemnation:

W.S. 35-11-425(b)(ii)(B) provides that the Environmental Quality Council may designate an area unsuitable for surface coal mining if the coal mining operation will: "Affect fragile or historic lands in which these operations could result in significant damage to imporant historic, cultural, scientific and esthetic values and natural systems."

Since a designation of lands under this provision is a total elimination of the values attributable to the coal in place, the owner of coal underlying these lands has suffered a taking of property for a public purpose and is entitled to compensation. Wyo. Constit.. Article 1, Section 33. Since designation operates as a total prohibition upon economic utilization of the coal, the coal owner is entitled to the benefit of W.S. 35-11-1001(b) -- ascertainment and payment of damages as in other condemnation proceedings.

Rocky Mountain Energy would be entitled to the "damage" to its property, Wyo. Constit., Article 1, Section 33, even in the absence of a literal taking of the coal, because it will suffer special damage differing in kind and not merely in degree from that sustained by the public generally. Sheridan Drive-In Theatre, Inc. v. State, 384 P.2d 597 (Wyo. 1963). Since the damages to the value of the coal is directly attributable to the designation under W.S. 35-11-425(b)(ii), the measure of damages is the difference between the fair market value of the coal before and after the designation (an actual physical taking of the coal is not required). Wyoming State Highway Dept. v. Napolitano, 578 P.2d 1342 (Wyo.), appeal dismissed, 439 U.S. 948 (1978).

Rocky Mountain Energy, by the foregoing argument, does not waive any contentions that such a taking may be totally void for failure to serve a public purpose. See: Associated Enterprises, Inc. v. Toltec Watershed Improvement District, 656 P.2d 1144 (Wyo. 1983).

Inverse Condemnation

A designation by either the Office of Surface Mining or the Environmental Quality Council of some lands which reduce or substantially limit the value of coal owned by RME on adjacent lands may also create a taking for which compensation is owed. Foster v. U.S., 607 F.2d 943 (Ct. Cl. 1979); Hirt v. City of Casper, 103 P.2d 394 (Wyo. 1940).

Without belaboring this point, notice of the foregoing contention is hereby given.

ROCKY MOUNTAIN ENERGY COMPANY

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CERTIFICATE OF SERVICE

I, David D. Freudenthal, hereby certify that the foregoing "Final Comments by Rocky Mountain Energy" was served by depositing true and correct copies thereof in the United States mail, postage prepaid, this 7th day of February, 1985, duly enveloped and addressed as follows:

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Red Rim Testimony
by James W. Shaw
for Rocky Mountain Energy
January 23, 1985

Mr. Chairman, Members of the Council and OSM. My name is Jim Shaw. I am employed by Rocky Mountain Energy (RME) as General Manager for Coal Development. My role today is to speak for the management of RME concerning my company's view on Red Rim. Let me begin by first reminding all of you who RME is. RME is the mining subsidiary of Union Pacific Corporation. A part of our charter is to develop, or oversee the development of, minerals owned by the Corporation. As I'm sure all of you know, our land ownership in southern Wyoming is in a "checkerboarded" fashion. As a result, we are continually working with the BLM, and where appropriate the State of Wyoming, to develop fair and effective ways to develop our joint resources.

Many people think that Rocky Mountain Energy and Union Pacific Corporation own billions of tons of coal reserves in Wyoming. That simply is not true. There are individual leases in the PRB that contain more recoverable reserves than RME owns in all of southern Wyoming. Our coal reserves are finite and that is one reason why we are so vigorously defending our Red Rim coal.

We have been working with the Department of the Interior for a number of years trying to develop a "cooperative leasing" program which would solve many of the perceived problems checkerboarded ownership creates in the leasing of coal in southern Wyoming. Red Rim was -- and from our perspective still could be -- the first tract offered in this novel way. Private and federal coal would be offered for lease together, at the same terms and conditions, using the federal coal management program.

RME has worked hard during its 15 year existence to be a responsible corporate citizen. We have always supported reasonable controls on our activities. In fact, we were one of the very few mining companies in 1977 who spoke in favor of the Surface Mining Control and Reclamation Act, which is the legislation which provided the forum for today's hearing. We take pride in our careful and prudent approach to all of our activities. At many projects, we have expended considerable money and effort, way ahead of the prospect of any financial gain, to assure our activities will be appropriate and, frequently, to allow the federal coal management program to work more effectively. Red Rim is an example of this. I know of no potential lease tract which has been more thoroughly studied, at this stage in the process of a tract that will be competitively leased, than Red Rim.

While, as you will hear, the so-called mine plan which was developed for Red Rim was really only an engineering study in no way developed to meet SMCRA standards, we have conducted a host of environmental studies since 1976. RME has studied vegetation, soils, hydrology, reclamation potential, wildlife and air quality issues. We have participated in the recent multi-agency antelope study. BLM and other federal agencies studied reclamation at Red Rim in the EMRIA (Energy Minerals Resource Inventory Assessment) program in the 1970's. This was an effort to study reclamation issues at selected western areas. Of course, in addition to all of this, Red Rim has been extensively studied by BLM in its land use planning, activity planning, multiple use analysis and coal lease tract environmental assessments over a period of several years.

During this period of intense study, RME has worked hard to keep local, county and state officials informed of our activities. We have shared our data and studies with these officials and we have studied other issues with and for them. We have worked the same way with the BLM. While we always share our nonproprietary data, at Red Rim we have even shared all of our proprietary data as part of our cooperative leasing efforts.

We have acted as we have because we felt that was the proper way for us to act. We believe in open, thorough discussion of issues. However, in every case there reaches a point where decisions are necessary. This project has received incredible attention for nearly 10 years now. One customer for this coal has come and gone while the issues have been studied. The agency responsible for studying this tract for leasing, the BLM, has studied and restudied the issues. We are convinced, as I believe you will hear from the BLM that they are convinced, that this tract is not unsuitable for coal development. Further, we feel that no significant new data have been brought to the table since BLM carefully considered these very issues.

We recognize that it is difficult sometimes to answer questions such as those posed at Red Rim before specific details of a proposed project are known. There are, quite likely, unacceptable ways to develop Red Rim. But that is not the point. The point is that there are acceptable ways to extract the coal at Red Rim. Our studies have clearly shown that. We will highlight these for you today. There will be few, if any, other tracts which can be reviewed at this level which are at the stage of leasing that Red Rim is. In addition, when the coal is leased, a company must still prepare

a detailed, specific plan which will show how the tract will be developed. At this point, the market will be identified, the mining rate set, the mitigation measures spelled out and the reclamation plan detailed. This specific plan will undergo detailed review, with opportunity for public input, to see if that specific plan is one in the "acceptable" range of alternatives. If not, change will be required until the plan is acceptable. With this level of protection still provided, it is unnecessary and clearly unfair to reject a tract. It is only if there are clearly no acceptable alternatives that one declares a tract unsuitable. As we will show this morning, the data clearly do not support the allegation that there are no feasible alternatives for Red Rim.

As an aside, I would like to respond to the perception I seem to hear that Red Rim coals have no value. My job at RME is to manage our development activities. Red Rim is not a valueless coal deposit. We have in 1984 and 1985 budgeted development dollars for Red Rim. If we felt that any chance of development was 20 or more years off, we wouldn't do that.

Some of the coals at Red Rim are potentially competitive in the 1980's. The biggest need is to consolidate a LMU of mixed ownerships. The allegation that these coals are valueless is not, in my opinion, based on considerable experience in the evaluation of coal deposits.



SUMMARY
PRESENTED AT THE CLOSE OF RME COMMENTS

RME would like to thank the Council and OSM for the opportunity to be heard this morning. I would like to close our comments with a brief summary. We are here today because we own a considerable amount of valuable coal which the State of Wyoming has been asked to take away from us. That coal is a valuable resource which we feel strongly can be developed in an environmentally sound manner, in complete compliance with all applicable statutes and regulations.

We have shown you this morning that the lands are not "fragile" as defined by SMCRA. First of all, the petitioners incorrectly postulated that all of the tract would be disturbed at once for the life of the mine. This is clearly not the case, as lands would be disturbed and reclaimed sequentially. Second, mining at Red Rim will not affect the viability of the antelope which utilize that area. In fact, the impact of mining out there will be insignificant compared to the impact of any severe winter. Further, because of the mitigation which will be required, there isn't even an argument that the cumulative impact of mining during a severe winter will in any way affect the viability of the herd. Third, there are a host of mitigation measures which our operation can utilize to assure that the impacts to the antelope are minimized if not completely eliminated. The petitioners in their allegations have completely ignored the availability of these measures.

We have also shown that the allegation that reclamation is not technically or economically feasible is false. In fact, we feel that there are steps which could be taken during reclamation which could even enhance the utility of the area for the utilization by antelope. We have also shown you that the technology clearly exists to return the land to its approximate original contours, as required by SMCRA. Finally, we have shown you that reclamation costs will not be prohibitive. The ultimate economics of the project can't, of course, be determined until a specific market is identified. However, there is, in our view, no question that reclamation can be achieved within what I will call conventional economics.

Let me close by stating that it is the intention of RME to be in business in Wyoming for a long time. We have not, nor will we, act in a manner which will jeopardize our ability to continue to operate in Wyoming. We are comfortable with our data and are prepared to stand behind it and our interpretations of that data which we feel clearly show that coal mining at Red Rim and antelope at Red Rim can coexist, just as they do at essentially every other mining operation in Wyoming.



1188X
01/23/85

Red Rim Testimony
by Paul R. Widinski
for Rocky Mountain Energy
January 23, 1985

Introduction

During my presentation, we will primarily address the technological and economic feasibility that is alleged to be impossible by the petition. We will discuss the engineering study used as the basis for the analysis, disturbed acreage and the differences in type, the use of alternative techniques and equipment to minimize disturbance, the cost of reclamation, and the economic viability of a project as affected by reclamation.

Emling Study

A The Emling study, which was used as the basis for much of the analysis of the petition, was a valid engineering feasibility study, but was not a final mine plan to be considered for permitting. The study was requested by a possible customer and its objectives were to analyze coal quality consistency, production capabilities, magnitude of investment, and a "feeling" for product cost. It was not subjected to a rigorous review for variations in technique or equipment. The study was also done prior to enactment of the Surface Mining Act, whose regulations would now preclude some of the operating assumptions that were made. In short, this study could not be submitted for permit consideration today; thus, it would seem inappropriate to use even a good analysis of an incomplete plan as the basis for engineering and economic judgements.

Area Cross Sections

B The petition maintains that some 11,000 acres or more than 60 percent of the critical habitat will be disturbed. RME remeasured the disturbance shown in the Emling study and arrived at 9,032 acres, or about 46 percent of the total area.

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A In the absence of a permit application for the Red Rim area, OSM based its analyses of reclamation scenarios 1 through 3 on the information contained in Emling's preliminary mining plan. We agree that employing mining methods other than those proposed in the plan could result in less disturbance and reduced environmental impacts; however, we conducted our analyses assuming mining would occur as proposed in the Emling preliminary mining plan because the plan serves as a maximum-impact scenario. Section IVA has been revised to indicate this. Although the Emling preliminary mining plan was developed prior to the enactment of SCMRA, *none of the* major operation assumptions of that plan (specifically, the conventional dragline mining method) would be precluded by SMCRA.

You have confused what the petition states with what the PED/EIS states. The petition states that RME estimated that approximately 3,750 acres of the Red Rim coal lease tract would be mined but that Wyoming GFD estimated that approximately 9,120 acres (or 69 percent) of designated critical winter range would be mined. (See section IVB of the PED/EIS for this specific allegation and OSM's response to it.) In section IVA of the PED/EIS, OSM estimates that a maximum of about 11,000 acres of the petition area would be disturbed by pits, spoil areas, and roads for draglines to use to walk between pits.

B OSM's 11,000-acre estimate includes both the very narrow strips of undisturbed land between mined areas and the small islands of undisturbed land within the mine areas that would likely be (1) disturbed by mine-equipment operators, (2) physically restricted from pronghorn use due to spoil piles and/or fence barriers, or (3) otherwise made unavailable to pronghorn because of mine-related disturbances such as noise and vehicle traffic. Section IVA has been revised to clarify this inclusion. After reviewing the mine-disturbance maps submitted by RME in its comments, OSM concluded that the dragline roads and these islands and narrow strips account for the discrepancy between RME's and OSM's estimates.

Note also that 900 to 1,000 acres, in addition to the 11,000 acres OSM has estimated, would be disturbed for haul roads, topsoil-storage areas, and onsite surface mine facilities. This estimated 12,000 acres of total disturbance would amount to 61.7 percent of the 19,452-acre petition area.

These sections (Figure A) will start us on a discussion defining disturbance and showing how it may be reduced. They were drawn at the locations shown in the small map and are representative of the mining zones. The scale is 200 feet to the inch and is not exaggerated, so the changes in elevation are reflected truthfully in relation to the horizontal distances. Note that while there are bluffs occurring, most of the area is relatively flat, a factor that will impact the cost of reclamation. The petition also states that this is a unique topographic circumstance. In reviewing mine plans for joint venture operations and our own, I would find it difficult to say this looks like unique topography. More important are the shaded areas which represent the actual pit areas to be mined. The pits are surrounded by other disturbed areas such as roads and spoil piles, but those areas have only had the topsoil removed or very minor earthwork performed. Again, this will be an important factor when we discuss costs.

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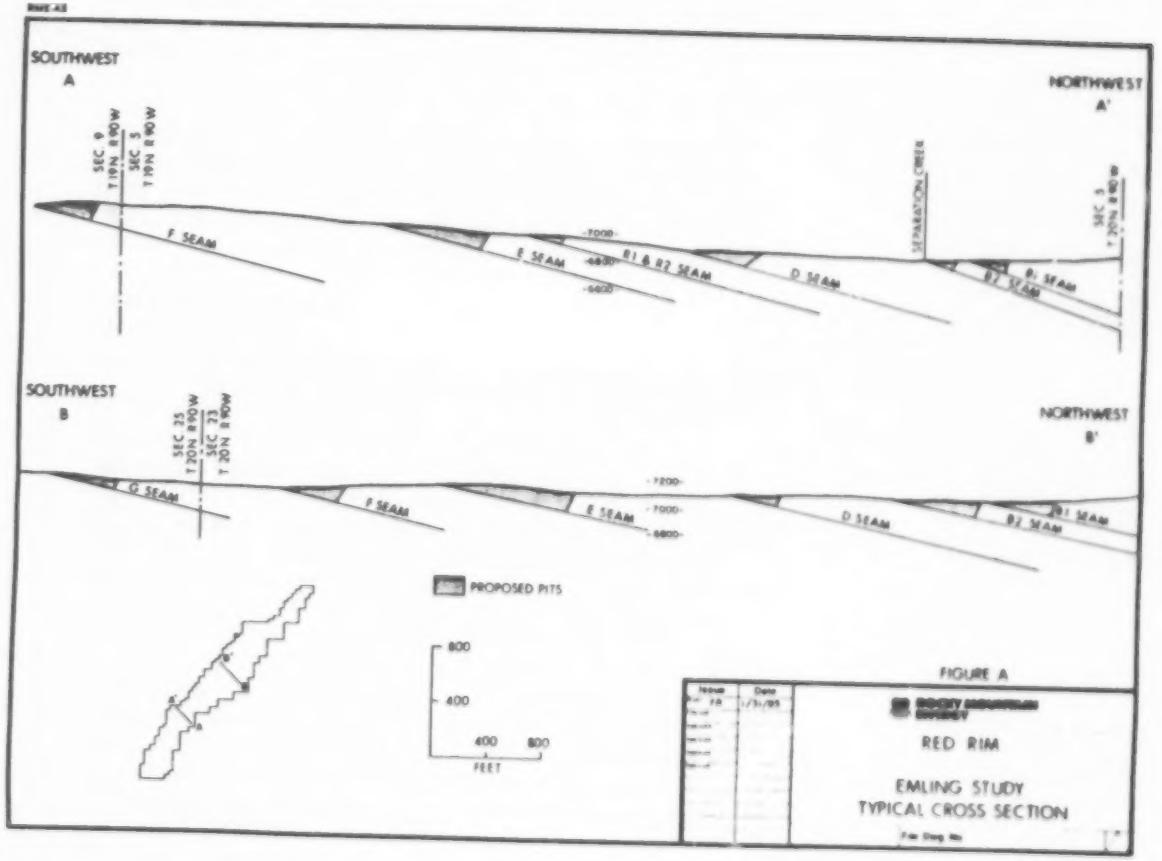
The actual pit areas represented by these sections would be 32 percent for the top and 44 percent for the bottom.

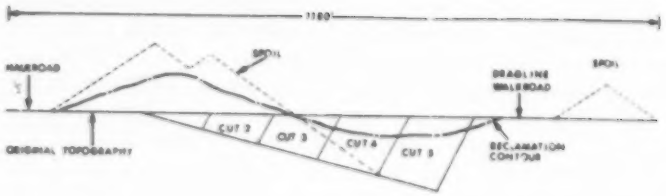
Technique and Equipment

Now, I'd like to illustrate how disturbed areas can be reduced by choosing different techniques or equipment. I'll draw three sections showing the same pit using these differences. The pit width is 600 feet, the average of the pits shown on the two previous sections (see Figure B).

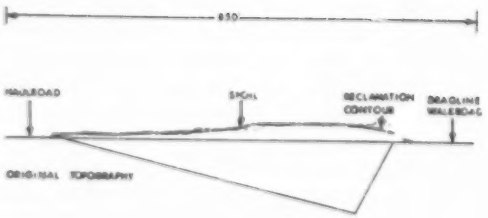
First, we'll look at a section typical of the Emling plan which is a strike line method using a dragline. This would be a reasonable approach for a long, narrow pit as it minimizes early operating costs. But it also inflates capital investment early in the project and can run the risk of low


SOUTHWEST
A
NORTHWEST
A'
SEC 9
T 19N R 90W
SEC 5
T 19N R 90W
SEPARATION CREEK
SEC 5
T 20N R 90W
F SEAM
E SEAM
B1 & B2 SEAM
D SEAM
B1 SEAM
B2 SEAM
SOUTHWEST
B
NORTHWEST
B'
SEC 25
T 20N R 90W
SEC 23
T 20N R 90W
G SEAM
F SEAM
E SEAM
D SEAM
B1 SEAM
B2 SEAM
PROPOSED PITS
800
400
400 800
FEET
FIGURE A
RED RIM
EMLING STUDY
TYPICAL CROSS SECTION

EMLING STUDY
STRIKELINE MINING - DRAGLINE




ALTERNATE METHOD
DIPLINE MINING - DRAGLINE




ALTERNATIVE METHOD
DIPLINE MINING - TRUCK & SHOVEL

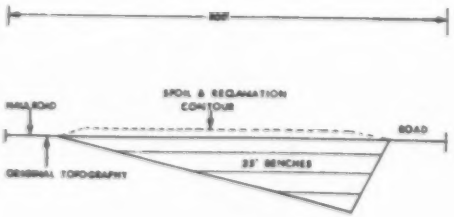



FIGURE 8

productivity in the early years, requiring a capital investment late in the project to make up production because the equipment is usually chosen for an average situation. What is important is the first cut which requires that a large amount of spoil be placed outside the pit limits creating a disturbed area. This activity would not be allowed today on areas where steep slopes existed. Also, the final cut is usually split so some spoil material is placed on the highwall where it is convenient for reclamation, but generates additional disturbance. Overall, we've about doubled the effective width of the pit to 1,180 feet. Finally, the reclaimed surface would look about like this under the old regulations, a situation which could not occur today.

Now, let's consider an alternative using the same equipment. Imagine turning the above 90 degrees so that it runs with the paper instead of into it. This would be a dip line method using a dragline. Its intent would be to average the waste removal over the life of the project so equipment would be efficient from the start and would be able to handle the required work throughout the project without assistance. We'll still have a first spoil pit here in front of the sketch, but its size is smaller. As we now fill the pit from cropline to highwall with each pass, we can fully utilize the pit area for waste material, and since our spoil material is being placed laterally instead of uphill, our spoil will tend to maintain the original ground contours. As we can now see, the width of the disturbed area has shrunk from 1,180 feet to 850 feet.

Let's carry this one more step by changing the equipment used to remove spoil. We'll keep the downdip method, but use a truck and shovel instead of a dragline. Again, we'll have a first spoil pile out in front of the sheet, but notice

we're able to contain the spoil in the pit. This is because we're still moving the spoil laterally instead of uphill, and because the swell or bulking up of the waste is less, so more spoil can be put back in a given area. Also, as we now deposit the waste in truck loads, the waste can be put where we need it and to some predetermined contour. In essence, we perform final regrading as part of the waste removal process. This section could also represent a combination of dragline and shovel methods so both earthmoving and regrading costs could be minimized, while also reducing the total disturbance.

Let's now look down on these methods and see how they affect the disturbed area. At the top (Figure C) is the strike line method using dragline and the bottom (Figure D) is a downdip method using truck and shovel. The pit width is the same; the length was chosen as 2,400 feet arbitrarily, but as a reasonable dragline pit length. Assuming a uniform coal thickness, the areas represented by the actual pits are the same. If the pit was wider, the truck and shovel would generate more disturbance; and if longer, the dragline would create more disturbance. The pits in the petition area are long and narrow.

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C What is shown here is that the dragline in this example generated 29.1 acres of disturbance, while the truck/shovel plan generated 19.1 acres of disturbance, or about 30 percent less disturbed area. This is due to the long, first spoil placed outside of the pit and the creation of all the accessory disturbance the entire length of the pit. The truck and shovel enjoys a certain compactness, able to add accessory disturbance as the pit progresses. This ability also lets remote areas of the pit remain usable by wildlife for a longer period of time. Reclamation also occurs earlier because we can fill in the pit from cropline to highwall and the method is conducive to direct haulback topsoiling. Again, because we

C See response to comment No. 111A. Section IVA has been revised.

**EMLING STUDY**
**Strike Line Mine Plan- Dragline**

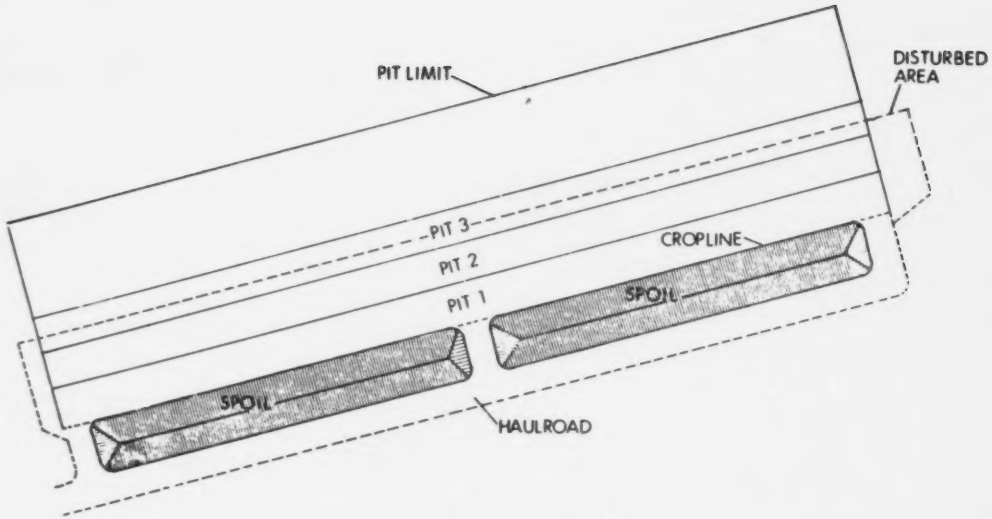


FIGURE C

ALTERNATIVE METHOD
Dip Line Mine Plan - Truck and Shovel

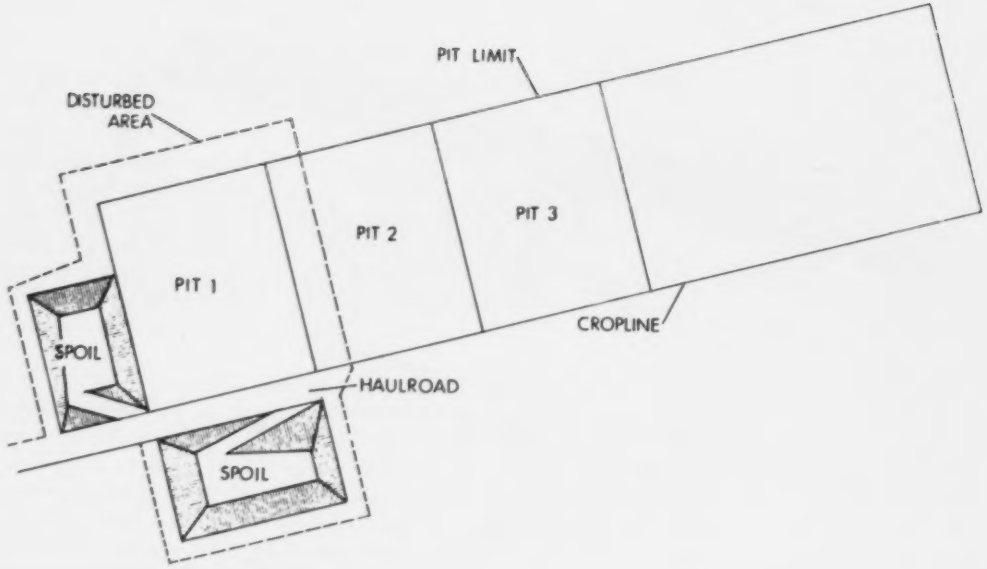


FIGURE D

deposit waste in truck loads, it would be possible to create depressions or generate ridges using blocky material oriented in a key direction to simulate closely the original topography. Finally, the area can be released to other uses earlier because an avenue of access is left as we progress.

None of this is to say that one way is the only way. Each method carries with it certain associated activities that must be considered; so the whole must be evaluated, not the parts. But it illustrates that by evaluating different methods, you can vary the impacts to the surface and, to a large degree, determine the cost of reclamation.

Cost

When we talk about cost, we're going to talk about the fact that there are different kinds of reclamation, that these kinds have different cost ranges, that all areas do not require the same reclamation effort, that microcontouring, if necessary, can be accommodated in reclamation, and most important, that cost must be expressed in cost per ton not cost per function.



There are two kinds of reclamation: current reclamation and final reclamation. Current reclamation is comprised of ongoing activities that occur throughout the life of the project. These activities would include the regrading of part of the spoils that have been created annually, the topsoiling of those regraded areas, and the revegetation of those areas. Final reclamation would consist of filling in the last remaining voids, regrading them, tearing down all facilities and recontouring those areas, topsoiling all remaining areas, and revegetation.

Current reclamation obviously does not require the same amount of effort as final reclamation. Depending on mine permit stipulations, it can be done in a somewhat piecemeal fashion that can be scheduled to minimize cost. Its cost may range from $3,000 per acre, say in a truck and shovel operation where regrading is performed as part of the spoil removal, to perhaps $10,000 per acre where considerable volumes or distance are involved. But depending on the mining method used, the largest portion of the disturbed area is generally reclaimed as current reclamation.

Final reclamation is a different beast, again depending on the mining method. Usually, large amounts of waste must be moved to fill the final pits and ramps. Shops and other structures must be torn down and roads must be removed. These requirements, when costed over the small amount of acreage related to each requirement, can lead to very high costs per acre. It is not surprising to see costs in the $15,000 to $30,000 range. But, even as we say that, we must remember back to the first cross sections where we could see that most of the disturbance around a pit consisted of topsoil removal and minor earthwork. Thus, a substantial number of acres involved in the final reclamation process escape the heavy burden of earthwork needed in filling back the final pits.

D

Therefore, when we talk about reclamation cost, we must be specific in describing its nature and the activities involved. On these points, the petition fails. The costs depicted are not defined as to specific nature with allowances for the variations in cost for differing areas and with no attempt to define these differing areas. We are, simply, presented with an estimate of cost per acre of a hypothetical program which, as ElRoy will point out, may not be necessary and are told it is too great a financial burden.

D

Table IV-6 and section IVC have been revised to show revised cost estimates for reclaiming different acreages under reclamation scenarios 1, 2, and 3.

E

But, the point to discussing costs has been missed. Amounts such as $15,000 and $30,000 are indeed large expenditures per acre, and the case is made that no one could afford to mine with such an operational expense. However, we don't sell acres; we sell tons. If we take the average thickness of coal on the project area, 8 feet, then we'll have about 15,000 tons per acre. So, the cost per ton could be $1.00 to $2.00, or even $3.00. I am very familiar with contracts that in today's competitive climate collect $1.00 to $2.50 for reclamation costs. This would put us in the cost per acre range allowing such possibilities as dry land sodding or increased transplanting, if they were necessary.

Also, the costs of reclamation generally comprise 7 percent to 16 percent of the selling price, so an underestimate of cost by, say, 30 percent is not going to make friends with the home office, but it should not be a crippling blow to a normal project.

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Microcontouring

I have left microcontouring for last because it is a vague issue. Things such as creating depressions for moisture, leaving rocky areas and rock pile for raptor and small animal habitat, and reorienting exposures while keeping approximate original contour are being done today at various operations within existing costs.

F

The creation of steeper sloped arroyos or rocky ridges oriented for wind protection, or as snow catchments, can be done. It may require some tradeoffs in local vegetation or other characteristics, but remember not every acre will require this kind of treatment and the cost will be distributed over all the tons in the project.

E

See the revised reclamation cost estimates in table IV-6 and section IVC. Average reclamation costs per acre range from $41,284 under reclamation scenario 1 to $21,895 under reclamation scenario 3. Based on the 69.0-million-ton coal-resource total assumed throughout the PED/EIS, the average reclamation cost per ton of coal would range from $6.58 per ton under reclamation scenario 1 to $3.49 per ton under reclamation scenario 3. Section IVC has been revised to include these per-ton reclamation cost figures.

F

The reconstruction of steep hillslopes, including existing rocky ridges and arroyos, may be problematical. Postmining hillslope stability analyses, made using assumed material properties (see revised section IVC), indicated that reclaimed hillslope gradients greater than 31.3 percent would be prone to landsliding and slumping. Hillslopes with gradients less than 31.3 percent may be prone to fluvial erosion, depending on what revegetation methods are surface manipulations are used. The loss of bedrock control of hillslope stability after mining might well limit the success (and feasibility) of reconstructing certain steep hillslopes under reclamation scenario 1.

The key is prior planning. If you have a multitude of tasks, you will develop plans that accomplish as many as possible at the same time. The example shown here would be the truck and shovel method where spoil is regraded as it is removed.

Slides

Before I summarize, I would like to show a few slides that will help to illustrate some of the points we have covered.

1. Dragline Method (Print A)
2. Final Pit Regrade (Print B)
3. Truck/Shovel Method (Print C)
4. Dozer Regrade (Print D)
5. Rock Structure (Print E)

In summary, we have illustrated that choosing the mining method can impact the kind and amount of disturbance and, therefore, its cost. We have shown that there are different kinds of reclamation and that costs must be identified as to their real nature; that planning is the key to minimizing cost; and, most importantly, that costs must be expressed in the correct terms to truly measure the economic impact.

We feel that the petition has used a preliminary study that would be invalid in today's regulatory environment as its basis; that alternative methods of equipment were not considered; that unspecific costs were applied without regard to variations in cost or in the amounts of area subjected to those costs; that vague terminology was used to create an impression of cost impossibility when costs had not even been expressed in meaningful terms.

Mr. Taylor will now present his discussion, if there are no questions.

G See responses to comment Nos. 111A, 111C, and 111D. We agree that reclamation costs would vary across the Red Rim area; section IVC has been revised.

Print A
Typical Dragline Method
Larger disturbed area - concurrent reclaration and regrading

Print B
Final Highwall Type Regrading

Print C
Typical Truck/Shovel Method
Small disturbance - immediate refilling of pit areas

Print D
Dozer Regrading
Potential to grade to desired final surface

Print E
Typical Rock Pile
For small animal and raptor habitat

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Red Rim Testimony
by ElRoy Taylor
for Rocky Mountain Energy
January 23, 1985

Up to this point, we have discussed Red Rim in general terms. I plan to change the approach by addressing the petition allegations more specifically. Let me begin by outlining some of the major points that I will discuss in more detail later.

Allegation 1 - that surface mining will adversely affect fragile land, is based on significant impacts to the antelope population. We will show that:

1. Mining impacts will not be significant to the antelope population.

2. The petition errors by predicting impacts based on maximum antelope counts instead of using antelope carrying capacity as a basis.

3. The viability of the antelope herd is not going to be threatened.

4. There are mitigation measures available that the petition does not address which could potentially reduce impacts to the antelope population.

Allegation 2 - the second major allegation in the petition is that reclamation is not technologically and economically feasible. I will show that:

1. The petition is weak, because it is based on the outdated Emling study which is only one of many available development options.

2. The petition fails to consider the benefits of alternative topography.

3. The petition assumes that a single method of replacing shrubs would be used when a combination of methods would be a better approach.

4. And, as Mr. Widinski has pointed out, realistic reclamation costs are not prohibitive.

I. The petition alleges that "Surface coal mining operations will adversely affect fragile land which is valuable habitat for pronghorn antelope." To support this allegation, the federation attempts to show "significant damage" to the antelope population.

A. Mining Red Rim will not have a significant impact on the antelope population in the Baggs Herd Unit. In fact, no more than 4 percent of the population will be temporarily displaced. A herd unit is a population which has minimal interchange with other populations.

To estimate potential mine impacts and place these impacts in perspective, we need to know two things: 1) the portion of the antelope population that depends on Red Rim, and 2) the proportion of Red Rim that could be unavailable due to mining activities. To be conservative, we use worst case assumptions in both cases.

First, we assume that 20 percent of the antelope in the herd unit depend on Red Rim for winter range. This is worst case because the maximum proportion of the population counted on Red Rim was 20 percent (PED/EIS, p. IV-8). The average proportion of the population present on the Rim is less than 20 percent.

The second important assumption we make is that 18 percent of the Red Rim winter range may be unavailable to antelope during the average year (3,141 cumulative disturbance average of 17,582 critical winter range, PED IV-3 and IV-8). This is worst case, because it is drawn from the PED/EIS which is based on the Emling study. As we have discussed, the Emling study is one mining method alternative selected without consideration of environmental concerns. Paul has suggested several ways that disturbances could be reduced even at the same mining scale.

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The 18 percent disturbance assumption is, in turn, based on another worst case assumption that all of the acres disturbed are within a critical winter range. For purposes of discussion here today, we will accept the Game and Fish designation of a 17,582 acre critical winter range.

H Combining the assumptions that 20 percent of the antelope in the Baggs Herd Unit rely on Red Rim and 18 percent of Red Rim will be unavailable at any one time, we see that we have lost the ability to support less than 4 percent (18 percent of 20 percent) of the antelope population. Thus, management objectives might have to be reduced by 4 percent - if mitigation measures which we haven't discussed yet are ineffective.

H See response to comment No. 100R.

A temporary 4 percent reduction in management objectives in the Baggs antelope herd unit does not appear to be a significant impact, much less a threat to the species as the petition implies.

B. The petition errs in using antelope counts to predict antelope losses. Impacts must be measured by changes in the capability of the habitats to support antelope.

Antelope counts are an unreliable basis for impact projections. These counts fluctuate in response to overall population numbers which may reflect management practices or the periodic reductions caused by severe winters more than they reflect habitat conditions. For example, before the winter of 1983-84, there was an estimated 10,000 antelope in the Baggs Herd Unit, nearly 40 percent above management objectives. Following that severe winter, there were about 3,300 animals. Meanwhile, the forage resource remained relatively constant. Predicted impacts of mining, if based on counts, would have been overestimated in 1983 and underestimated in 1984.

Red Rim will support about 1,200 antelope without causing a long-range reduction in forage quantity. This is based on measurements of antelope use of the forage resource. More than 1,200 antelope have been counted on Red Rim, but consistent overuse would damage the shrub community and would ultimately lower the ranges capacity to produce antelope food.

I

OSM's estimates of pronghorn mortality assume that when mining occurred the population of the Baggs Herd would be 7,200 animals (the current population-management objective for the herd) and that one-third of the herd, or 2,400 pronghorn, would depend upon Red Rim for survival (Wyoming GFD estimate). See section IVB for a discussion of OSM's pronghorn-loss estimates and of the assumptions used in calculating them. See response to comment No. 100R.

J

There are no data to document the long-term effects on the quantity of forage at Red Rim should more than 1,200 pronghorn be restricted there winter after winter. However, according to the data presented in table II-3, at some time during five of the last eight winters more than 1,200 pronghorn (and as many as 2,400 pronghorn) have been observed on Red Rim.

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Based on the average cumulative disturbance (PED/EIS, page IV-3), mining Red Rim could reduce carrying capacity by 18 percent during the average year. Since present capacity is about 1,200 antelope, management objectives would need to be reduced by 216 antelope to prevent overuse of the resource. High populations present over the past several years may have already reduced Red Rim's capability to support wintering antelope.

K

We need to put reduced carrying capacity into the Baggs Herd Unit perspective. The present management objective is 7,200 antelope. Assuming this objective is in balance with the forage resource mining, Red Rim could, in the absence of effective mitigation, reduce the management objective by 216 antelope or 3 percent. Again, this does not appear to be a significant impact to the antelope population.

K See response to comment No. 100R. Your estimate of the extent to which the pronghorn population-management objective for the herd would be reduced should Red Rim be mined is included in section IVB.

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C. The viability of the Baggs Herd Unit is not threatened by the proposed mining at Red Rim.

The viability of the herd unit will not be threatened by the mining activities on Red Rim. We have shown that the Baggs Herd Unit might be reduced by an average of 4 percent given a series of worst case assumptions which are, in turn, based on a worst case mining scenario. Compare this reduction with some of those inflicted by nature. This past winter (1983-84) reduced the herd by an estimated 67 percent. The Chain Lakes herd was reduced by 62 percent during the 1971-72 winter, and no one has suggested that either herd is not viable. We agree with

the PED/EIS statement "that in any case, the Red Rim antelope population would only be reduced, not lost". The effect of mining on the Baggs Herd Unit is small and, with appropriate mitigation and mine planning, the impacts may be decreased even further.

D. The petition implication that mining Red Rim is a threat to the species is ridiculous

To imply that the impacts of mining Red Rim is a threat to state antelope herd of about 400,000 and a threat to the national population of about 900,000 is absurd. We have shown that the Baggs Herd Unit itself will be minimally impacted.

E. The petition does not consider the benefits of reclamation.

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It is important to understand that mining and reclamation occur sequentially. There is some disagreement about the number of acres that will be disturbed, but we should all understand and agree that all of the coal reserves on Red Rim will not be mined at once. In the larger perspective, while mining is disturbing one area, the area disturbed the previous year is being reclaimed. Following an initial time lag, reclaimed areas are being returned to use at the same rate that mining is disturbing new areas. Impact estimates which do not consider the value of reclamation overstate even potential worst case mining impacts.

Less than half of the Red Rim lease tract would be disturbed even based on the worst case Emling study. Included in the unmined area are no surface occupancy areas which guarantee protection. The BLM working with the WGFD selected the most critical part of the winter range and protected it with a NSO stipulation. Other protected areas include a buffer zone along Separation Creek and buffer zones around eagle nests.

L

L See response to comment No. 100B. Adopting the pronghorn no surface occupancy area would not "guarantee" protection of the pronghorn that use Red Rim.

F. Mitigation measures are available which could potentially reduce mining impacts to antelope.

So far, we have discussed only potential worst case impacts and have pointed out that these impacts are not significant. These impacts are none the less important and should be alleviated if possible. Several mitigation measures have been suggested. These suggested measures will be more fully evaluated during mine planning. The BLM has an antelope habitat mitigation stipulation attached to the proposed Red Rim coal lease. This stipulation requires a thorough examination of mitigation measures.

Specific mitigation measures can not be selected until a realistic mine plan has been developed. It is still informative though to review some of the mitigation options which are available to offset the potential impacts we have discussed. These measures could be implemented at various stages of mine development.

1. Improve antelope winter range which will not be disturbed by mining. (Use map to show alternate winter ranges and unmined portions of Red Rim.)

M { a. Reduce antelope competition with livestock for the forage resource. Of course, any livestock measure would have to be a cooperative effort with ranchers. Some potential methods to reduce competition include: purchasing grazing rights and improving areas not used by antelope for livestock use, by brush control and seeding, salt distribution or water developments, and other standard range management practices.

M See revised section IVB and response to comment No. 100F.

N { b. Manipulate shrub stands to make them more valuable to wintering antelope. Thin dense stands, rangeland pitting to increase soil moisture, burning decadent stands to free nutrients for new growth, planting additional valuable shrubs.

N Shrub manipulation would be a beneficial mitigation measure in certain areas. Careful study and analysis would be necessary to select areas where such manipulation would be appropriate.

O { c. Increase range production by fertilizing or installing water spreader systems.

O OSM agrees that fertilization and the installation of water-spreader systems on unmined lands would be beneficial measures that could partially mitigate impacts to pronghorn that use Red Rim.

P { 2. Influence antelope use of available range by developing water sources in strategic locations. One goal would be to encourage antelope to use ranges other than Red Rim during summer months thereby reserving Red Rim forage for winter use. Water sources could be windmills, reservoirs, or wells. A controlled source such as windmills would provide the most flexible tool to influence antelope distribution.

P As your data (on page 69 of your letter) show, browse comprises about 50 to 60 percent of the spring and summer diets of pronghorn but about 80 to 90 percent of their fall and winter diets. In addition, as Irwin and others (1984) found, about 700 pronghorn use the Red Rim area during the spring, summer, and fall but as many as about 2,400 of them use it in the winter. Because considerably fewer pronghorn browse shrubs during the spring and summer at Red Rim, it is unlikely that any diversion of pronghorn away from Red Rim during the summer would appreciably increase the amount of browse available for ther use during the winter there. There is no evidence that summer use of Red Rim by pronghorn significantly limits the winter carrying capacity of the area.

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Q

3. Improve antelope access to winter range.

a. Modify existing fences to allow antelope to pass through. If modification is not possible due to livestock management conflicts, gates should be left open when livestock are not present. New gates or antelope passes could be installed in fence corners or any place antelope congregate during migrations.

b. Minimize new fencing. Some woven wire fence will be required around newly reclaimed areas. Design reclamation fencing so that corners, etc., cannot trap antelope. Other fences, if necessary, should be designed to allow antelope passage.

Q See response to comment No. 6BC. Plans for fence locations and design would have to be approved by BLM, OSM, and Wyoming DEQ at the mine permitting stage. However, because fences would have to be constructed around parcels of reclaimed land for at least 10 to 12 years to exclude pronghorn from this land, such plans would only partly mitigate adverse impacts to pronghorn movements. In fact, those fences that were designed to exclude pronghorn from portions of the critical winter rance could cause significant adverse impacts.

298

R

4. Allow hunting access where possible so that harvest objectives can be met. Since the goal is to reserve forage for winter use by antelope, we need to avoid the refuge system that has been created by some mines where hunting is not allowed.

5. Educate mine personnel to make them aware of wildlife concerns, game and fish regulations, and company policies concerning wildlife. This is standard practice at the mines we operate or our joint venture mines.

R We agree that employee education would be essential to developing wildlife mitigation plans.

In regard to the allegation that mining will adversely affect fragile land, we have shown that: 1) worst case impacts would not be significant to the antelope population and that an alternative mine plan would likely be selected which would further reduce the projected impacts; 2) the petitions impacts are overstated because they are based on antelope counts made when the population was at a peak instead of being based on carrying capacity; 3) that the viability of the herd will not be threatened and the allegation that the species is threatened by mining on Red Rim is absurd; 4) mine and reclamation sequencing holds annual disturbances to a minimum; and 5) mitigation measures are available which could reduce the impacts to the antelope herd.

II. The petition alleges that reclamation is not technologically and economically feasible under the Surface Mining Control Act of 1977.

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A. As Mr. Widinski pointed out earlier, preplanning can minimize costs, and the mining method can be selected to most efficiently restore terrain features. Standard operating procedure options are available which are cost effective.

S The petition bases this allegation on the Emling study which was designed to determine the operational and economic parameters of maximum coal recovery without consideration of environmental concerns. The Emling study was commissioned pre-SMCRA, not proposed as a mine plan and was designed for a specific market that no longer exists. Even so, the coal was sold with a contract that included reclamation costs.

S See response to comment No. 111A.

B. There is no basis for the petitioners demand that the reclaimed topography be an exact duplicate of premining topography. The petitioners have not considered the potential benefits of the alternatives.

We believe that options exist which would make the mined portion of Red Rim even more beneficial to wintering antelope. If, however, design features are not more efficient than premine conditions, the technology exists to restore present topography. The stipulated habitat reclamation and restoration plan must be approved by the BLM before mining can occur. Once again preplanning is the key to economically feasible topographic restoration.

The antelope study conducted by the University of Wyoming and supported by the BLM, WGFD, USFS, and RME identified diverse topography as being important to wintering antelope. Terrain features which perform important functions include uplifted benches, draws, and slopes with various steepness and aspects. Technology exists to predict the efficiency of each feature to perform the various functions. This technology can be applied during mine design to increase the efficiency of the post mine landscape.

Snow distribution is important in several ways. Snow distribution could be optimized by a surface feature design that left bare ridges and snow collection locations in the most efficient manner. For example, ridge tops could be designed with irregularities that would hold snow to encourage shrub growth in exposed locations that are available to antelope during winter months. Of course, this scheme would have to consider not getting the snow

300

T

T See response to comment No. 2D.

too deep for antelope access to the plants. These surface features would not have to be large. Moisture which collects along rutted roads in the area produce more shrub growth than smooth terrain. As another example, slope lengths, steepness, and aspects could be designed to maximize their benefits to antelope.

C. The petition errors in assuming that each shrub must be restored by transplanting.

Let me tell you why we don't think that is necessary. Shrubs can be established from seed, invasion, and natural reproduction as well as from mature transplants. Invasion and natural reproduction are expected to have a significant effect on final shrub stands. Seeds of various shrubs important to antelope will also be planted.

A well thought out reclamation plan will likely include a variety of shrub establishment techniques. No single method is suggested as the answer to all the various situations where shrubs will need to be established. Mature shrub transplants might be placed in locations favoring natural reproduction. Tublings could be best suited to steep slopes. Pads placed with a modified front-end loader could be best used where shrub stands are desirable in erosion prone drainages.

Initial shrub transplants would not attempt to achieve the densities ultimately desired. We have some basis for believing that a combination of techniques would work. At our Leucite Hills mine, where shrubs are established from seed alone, we have achieved successful establishment,

301

U

U See responses to comment Nos. 2E and 6BJ.

more than 5,000 plants per acre. More than 4,300 of these seedlings were sagebrush. In addition to sagebrush, other shrub species are important to antelope. Species useful to antelope which are being grown from seed at Leucite Hills include: fourwing saltbush, Nuttalls saltbush, shadscale, and winterfat. Natural reproduction can also result in dense stands of seedlings. On the Red Rim shrub plot, the sagebrush seedling density exceeds the predisturbance densities.

D. The petition assumes that each disturbed acre must be reclaimed to a sagebrush type.

There are many acres where measures to promptly restore vegetation as antelope habitat is not critical. Such areas include greasewood flats, barren areas, grass types, saltbush communities, and previously disturbed areas that are not presently important components of the winter range. Some of these types are more easily restored than sagebrush. Saltbush and grass, in particular, are easily reestablished.

V

V We agree that the entire petition area would not have to be reclaimed to a sagebrush vegetation type and that vegetation types other than sagebrush would be more easily reestablished. Even though these other vegetation types might not be important to pronghorn, Wyoming DEQ and OSM contemporaneous-reclamation regulations do require their relatively rapid reestablishment after mining.

E. The petition assumes that original shrub densities must be restored. The petitioners have failed to consider the benefits of alternative densities.

Less dense communities often produce more vigorous individuals and can be more productive. The benefits of less dense communities can be compared to a farmer thinning sugar beets or a gardener thinning radishes. You do get more usable production from fewer, more robust plants. Antelope do not eat stems per acre, they eat forage. More forage may be produced by robust shrubs in less dense communities.

W

W See response to comment No. 100E.

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F. Mature sagebrush plants can be successfully transplanted on Red Rim.

X A demonstration plot on Red Rim as shown that sagebrush can be transplanted in this setting, that original densities are not necessary to achieve production equal to the original community, and that healthy plants can produce an abundant seed source. (See Prints F-L.)

Working together, BLM and RME began the shrub plot demonstration in 1979 in response to the challenge that sagebrush could not be transplanted in this arid region. Mining was simulated using heavy equipment to remove topsoil and overburden down to the coal seam at 10 feet. The overburden and topsoil was replaced, and a tree spade was used to transplant mature sagebrush plants from the adjacent community. 640 sagebrush plants were transplanted. All of the transplants survived and grew. In fact, by the third year, shrub cover in the test area exceeded the cover that existed before disturbance. The transplants were robust individuals that produced abundant seeds. Invasion between the transplants was rapid.

We do not represent this test case as being typical of what will happen in every case. We do not suggest that this is a reclamation technique that could completely restore the sagebrush community on Red Rim. The tree spade may not even be the best method to transplant sagebrush. We do think that we have conclusively demonstrated that sagebrush can be successfully transplanted on Red Rim. Such transplants can be an important tool as part of an overall plan to quickly restore antelope winter range.

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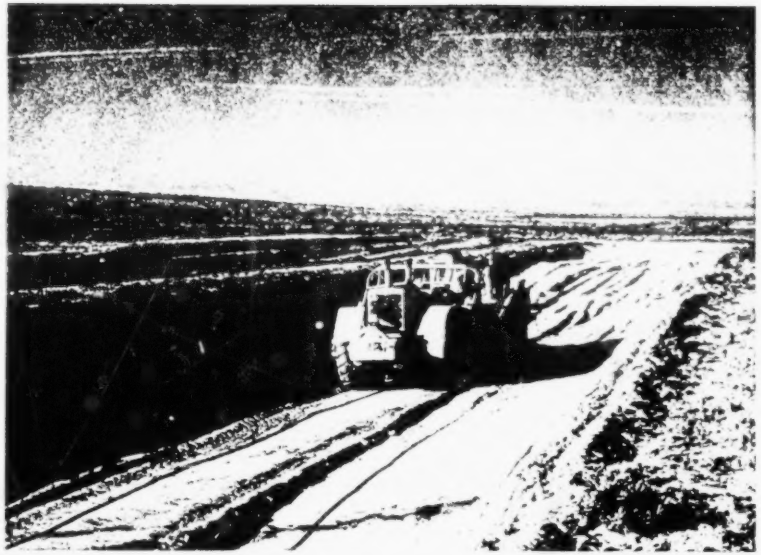
X See response to comment Nos. 100H and 100I.

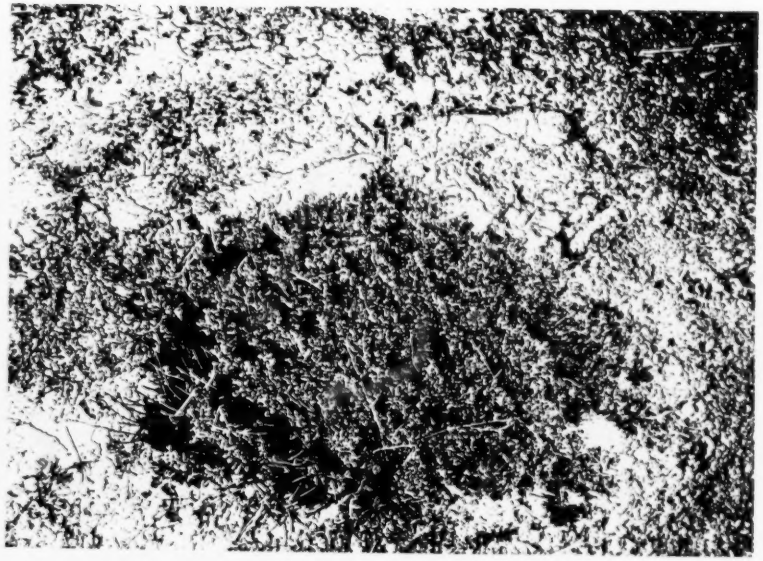
To summarize, we have shown that: 1) the petition is weak, because it bases impact analysis on the worst case Emling study when other viable options are probable; 2) there is no basis for the allegation that the exact topography must be restored; the petition did not consider the benefits of alternative topographic restoration; 3) the petition erred in supposing sagebrush density had to be restored by immediately restoring by transplanting mature plants; 4) the original density requirement is not mandatory or perhaps desirable; 5) shrubs have been successfully transplanted on Red Rim; a combination of reclamation techniques is the best approach; many other desirable shrub species are easier to establish than sagebrush; 6) predicted costs are within the reclamation cost range of other mines in the region; in fact, all of the practices suggested are being used by various operating mines. The coal on Red Rim was sold under a contract that would have allowed for special reclamation practices.



Print F. Study plot preparation to simulate mining activities. The topsoil was removed, and stored, the overburden removed down to the coal seam at about 10 feet. The overburden and topsoil were both replaced.

Print G. Mature sagebrush plants were selected from the adjacent area and transplanted with a tree spade onto the prepared site.

Print H. Transplant root systems were protected from drying by making sure each plug fit tightly into the hole. Note undisturbed native vegetation in background.



Print I. Newly transplanted sagebrush plant, 1980.

Print J. Transplanting completed spring of 1980.

Print K. Sagebrush growth and invasion by spring of 1982. Some of the new plants which volunteered from seed appear to be about 12-inches high.

Print L. Sagebrush reclamation plot in October of 1984. Note invasion, vigorous growth, seedhead production, and undisturbed vegetation.

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WRITTEN COMMENTS

This section responds to questions raised during the January 23, 24, 1985, Rawlins hearing. The following questions and corresponding answer page numbers are listed:


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Wildlife

o Is the antelope population declining?

No, not in this century. Present antelope population is at an all time 20th century high. Historic reports of antelope population numbers have varied widely. Antelope numbers declined from high estimates in the 1800's to near extinction in the early 1900's. The trend since that time has been upward to today's modern record high.

Seaton estimated that there were 40 million antelope in the western U.S. in 1800. Wyoming's State Game Warden, D. C. Nowlin, said antelope were near extinction in 1902, and in 1904 estimated that there were less than 5,000 in Wyoming. Estimates since that time have been steadily increasing: 1926 - 21,885; 1952 - 200,000; 1965 - 140,000; 1970 - 200,000; 1979 - 217,519; 1980 - 216,247; 1981 - 317,000; 1982 - 417,515; and in 1983 - 468,700 (Sundstrom, et al., 1973; Taylor, 1975; Gasson, WGFD, Personal Communication, 1985).

o What proportion of the world's pronghorn antelope population resides in Wyoming?

Wyoming has historically reported about 50 percent of the known population of pronghorn antelope. Sundstrom, et al. (1973) listed the known population of antelope at that time and showed Wyoming to have 46 percent of the total population. During the 1984 Antelope Workshop held in Corpus Christi, Texas, 13 states and providences reported on their antelope populations. Sundstrom's, et al., 1973, total population numbers were adjusted by the percentage change in the reported

populations. A rough estimate of the total antelope population thus derived is 865,350. Wyoming reported a population at the time of that workshop of 482,000, or about 56 percent of the total.

310

- Will antelope be displaced by mining as they were by the Red Rim fence?

The impact of the "Lawrence" fence during the winter of 1983-84 has been used by the petitioners to illustrate what would happen if a large part of the designated Red Rim critical winter range was unavailable to antelope during a severe winter. The inference was that mining impacts would be similar to the impact of the fence. Any comparison between the fence and mining is invalid. Even potential "worst case" mining impacts are insignificant compared to the fence impact of denying antelope access to Red Rim.

Y

The fence was designed and built specifically to exclude antelope. It is constructed of woven and barbed wire, 60 inches high, 28 miles long, and surrounds 80 to 85 percent of the critical winter range. In effect, this fence was designed to immediately preclude antelope access to nearly all of the designated winter range.

Mining will be designed to be compatible with antelope use of Red Rim. We have shown that given a series of worst-case assumptions similar to those in the PED/EIS, only 18 percent (3,142 acres) of the critical winter range (17,582 acres) will be unavailable to antelope during the average year.

Y The fencing surrounding active mining and reclaimed areas at Red Rim would differ from the Lawrence fence in its design, extent, and impact on pronghorn movements. See response to comment No. 111Q.

New reclamation will be fenced, but these fenced areas will constitute only a small portion of the Red Rim range and antelope movements around the reclaimed areas and across the mine site will not be impeded.

The Lawrence fence also formed a barrier which prevented antelope from reaching other winter use areas, because it is connected with other livestock fences on both the north and south. Mining would not construct similar fence patterns that would restrict antelope movement. In fact, one of the suggested mitigation measures is to modify existing fences where possible to make antelope access easier.

- Does reducing livestock use of winter range provide for increased antelope use?

Reducing livestock use of winter range is an effective means of increasing available antelope forage. The value of reducing livestock use on antelope winter range can be estimated based on a study done in the Red Desert area (Taylor, 1975). The Red Desert study area began just across I-80 from Red Rim, so the study results should be applicable.

The study showed that reducing winter sheep use of an antelope winter range is useful because of the competition for forage between the two species. On the other hand, removing spring cattle grazing from a range used by antelope during the winter is of little value and, in fact, might be detrimental by removing grazing pressure from grasses that compete with shrubs.

Removal of one sheep for one month during the winter would allow an increased carrying capacity of 0.58 antelope without changing the grazing pressure on antelope forage. The class conversion calculation is 9.4/7.7 (AUM conversion ratios) x .47 (similarity between winter diets) = 0.576. The class conversion can be adjusted by the season of use and time period. Removing 250 sheep which normally graze a pasture for two months during the winter would allow additional forage for 288 (250 x 2 x 0.576) antelope months. These 288 antelope months could be 144 antelope for two months, 288 antelope for one month, etc.

Z

Cattle grazing in the spring do not use foods important to wintering antelope; therefore, reducing spring cattle grazing would have no measurable benefit to antelope winter range. Many other alternatives exist as to class of livestock removed during various seasons. The value of these measures can be estimated and monitored. In our opinion, this mitigation approach is valid and would provide additional antelope forage.

312

Winter use by sheep is known to occur on the Muddy Creek winter range. Reduction of sheep use on Muddy Creek would increase its capacity to support antelope. Antelope tagged on Red Rim have used the Muddy Creek winter range. Sheep use of the other winter ranges has not been documented. There is potential to increase the value of these areas, but further work will be required to determine the potential value of reducing sheep use.

o What do antelope eat in the winter?

During the Rawlins hearing, pronghorn winter diets were reported to be 96 percent sagebrush. Based on research

Z

Although sheep have used two of the four grazing allotments that include portions of the Red Rim area, we are not certain that they have used the Red Rim area itself during the last 4 years. Snow accumulation often prevents pronghorn north of the Muddy Creek critical winter range from moving into that area. See response to comment No. 100F.

on antelope food habits by experts in the field, this is too high. Foods eaten by antelope during winter months are predominately sagebrush, but other plants are also important.

A comprehensive antelope food habits study conducted in the Red Desert area reported antelope diets over a two-year period (Taylor, 1975). The winter diet in the study area was 92 percent shrubs. This included 69 percent sagebrush, 9 percent rabbitbrush, 13 percent Nuttalls saltbush, and 1 percent birdfoot sagewort (Table 1).

AA Taylor's study was based on analyses of the contents of 109 antelope stomachs. Analysis of stomach contents is more accurate than the commonly used fecal analysis, because differential digestibility has less effect earlier in the digestion process. Six antelope (3 bucks and 3 does) were collected during May, June, July, August, October, December, and February beginning in May 1970 and ending in April 1972. Rumens were also obtained from antelope killed by hunters during the September hunting seasons. The winter of 1971-72 was "severe," when higher than average browse (shrub) use would be expected.

Antelope are generally nonselective during winter months, consuming forage in proportion to its availability. Taylor found no significant positive selection during the winter months. Forage preference is indicated when antelope select a higher proportion of a given plant than would be expected based on its availability in the plant community. Shrubs which were eaten in excess of their availability were rabbitbrush and Nuttalls saltbush. Sagebrush made up less of the diet than would have been expected based on total forage availability.

AA See response to comment No. 1003.

313

Table 1. Percent of plants in the diet of pronghorns on the Red Desert.

| Forage Class | Plant | Season | | | | Weighted Average* |
|---|---|---|---|---|---|---|
| | | Spring | Summer | Fall | Winter | |
| Browse | Big sagebrush | 25.2 | 21.6 | 51.0 | 69.1 | 49.3 |
| | Rabbitbrush | 4.8 | 18.9 | 11.0 | 8.6 | 10.3 |
| | Nuttall saltbush | 0.6 | 0.7 | 9.1 | 12.8 | 7.8 |
| | Birdfoot sagewort | 9.7 | 10.2 | 3.6 | 0.9 | 4.6 |
| | Black greasewood | 0.9 | 4.4 | 0.8 | 0.0 | 1.1 |
| | TOTAL | 48.0 | 59.8 | 78.2 | 91.8 | 75.8 |
| Forbs | Plains pricklypear | T** | 4.3 | 7.8 | 0.1 | 2.7 |
| | Woody aster | 0.7 | 8.5 | 2.4 | T | 2.1 |
| | Bushy birdbeak | 0.7 | 5.2 | 3.6 | 0.0 | 1.9 |
| | Penstemon | 7.3 | 2.6 | 0.3 | T | 1.7 |
| | Ballhead sandwort | 9.8 | T | 0.0 | 0.0 | 1.6 |
| | Thistle | 1.7 | 2.3 | 1.0 | T | 0.9 |
| | TOTAL | 34.6 | 38.4 | 17.6 | 1.3 | 17.1 |
| Grass | | 17.4 | 1.8 | 4.2 | 6.9 | 7.1 |

*Weighted to 2 months spring, 2 months summer, 3 months fall, and 5 months winter

**T <.01. Only the 12 important plants are listed by species, but the totals for each class include the amount of all plants in the diet.

From: Taylor, E. R., 1975. Pronghorn Carrying Capacity of Wyoming's Red Desert, Wyoming Game and Fish Department, Wildlife Technical Report No. 3, 65 pages.

Potential reclamation specifications will include a variety of browse plants useful to antelope during the winter. Suggested shrubs include sagebrush, Nuttalls saltbush, rabbitbrush, and fourwing saltbush. This variety of shrubs will meet DEQ rules and regulations as well as being important to antelope.

The applicable DEQ regulation is Chapter IV of the Rules and Regulations, Environmental Protection Performance Standards, Section 3d.(1). The operator shall establish on all affected lands a diverse, permanent vegetative cover of the same seasonal variety native to the area or of a species that will support the post mining land use. This cover shall be capable of stabilizing the soil. (Emphasis added.)

315

- Is antelope winter range other than Red Rim available in the northern Baggs Herd Unit area?

Calculating impacts based only on the designated critical winter range is unrealistic. Red Rim is the only winter range designated critical by the Wyoming Game and Fish Department in the northern half of the Baggs DAU. There are other winter ranges available in the same area which have not been designated critical. Realistically, Red Rim is an important part of a winter range complex--not an entity unto itself. Antelope do not restrict themselves to Red Rim, but also use other areas which may be of equal importance under some weather conditions.

AB

Antelope trapped and tagged near Red Rim in the fall of 1979 used 12 different winter ranges during the following deep snow winter (Irwin, et al., 1984, and Figure 1). Ten of these winter ranges are more or less contiguous with Red Rim, while two are separated by a greater distance.

AB

Section IIA acknowledges that pronghorn are mobile and move onto areas outside the delineated critical winter range. However, data indicate that the Red Rim area consistently supports a large number of pronghorn during severe winter conditions. Therefore, Wyoming GFD designated the area critical winter range. See responses to comment Nos. 6R and 6W.

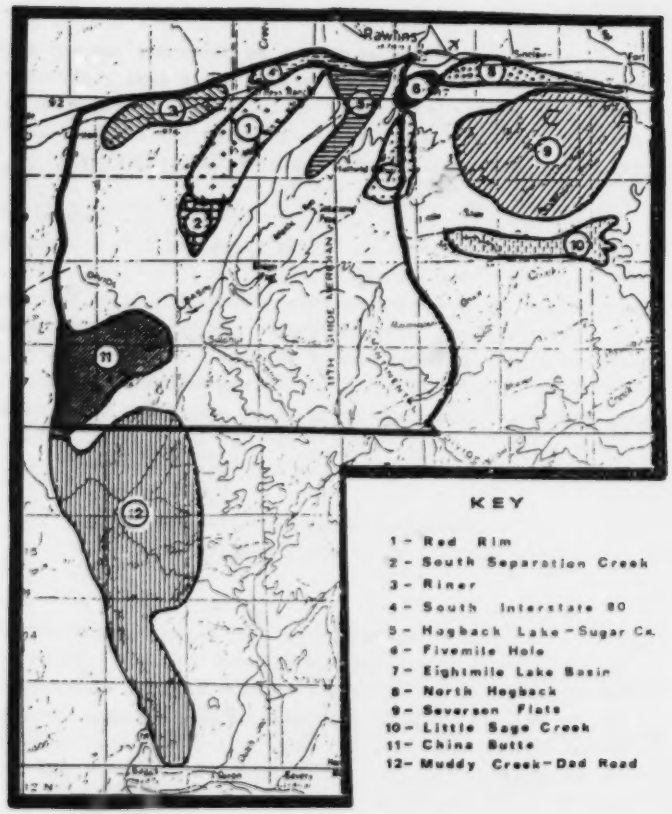


Figure 1. Wintering areas used by pronghorn antelope during the 1979-1980 winter.

From: Irwin, et al., 1984.

Roughly, the Red Rim winter range is 20,000 acres, but antelope tagged on Red Rim used winter ranges totaling about 290,000 acres during the course of one deep snow winter. Calculating impacts based only on the designated 17,582-acre critical range is more than worst case.

Not only do antelope move between winter range areas, they also move about on Red Rim itself during the year. During February of 1980, the most severe winter studied by the University of Wyoming, antelope were concentrated on the north and south portions of Red Rim -- many were outside of the designated critical winter range. By March of the same year, antelope were concentrated on the north end of the Rim because snow persisted on the south portions of the area. Again, many of these antelope were outside of the designated critical winter range.

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- Is antelope travel prevented by a snow belt around Red Rim?

The importance of a "snow belt" which prevents antelope travel to and from Red Rim has been overstated. Antelope travel is restricted by snow that is soft and deep, but in southern Wyoming such conditions seldom last long. The combination of a few warm days and the persistent wind usually form a substantial crust that will support antelope. Antelope can readily travel over such crusts. In fact, antelope travel has been documented to be <u>most extensive</u> during severe winters. The problem created by deep snow is restriction of antelope access to forage more than restricted travel.

AC

Irwin and others (1984) found that pronghorn moved significantly longer distances in the winter of 1979-80 than in the other winters of their study. It seems likely that the movement was owing to (1) the relative harshness of the weather during that winter, (2) the fence across Red Rim that Taylor Lawrence began constructing then to exclude pronghorn from portions of the critical winter range, or (3) both.

AC

As stated in section IIA, snow accumulation around Red Rim is only one of several reasons why the Red Rim critical winter range traditionally supports a substantial portion of the Baggs Herd. The combination of (1) food and shelter availability on Red Rim, (2) the inaccessibility during severe winters of the Muddy Creek critical winter range to pronghorn occupying the northern portion of the Baggs Herd unit area, (3) the restriction of pronghorn access to forage covered by snow on all ranges adjacent to Red Rim, and (4) the inability of the Muddy Creek critical winter range and other surrounding winter ranges to support additional pronghorn (see comment No. 45C) all increase the importance of Red Rim as critical winter range.

Many studies have reported the greatest antelope movement during severe winters (e.g., Amstrup, 1968; Group Discussion, 1968; Riddle and Oakley, 1973; West, 1970). Examples are also available in the Red Rim area. During the University of Wyoming's antelope study, antelope movements during a deep snow year were significantly greater than during two milder winters (Irwin, et al, 1984). Marked antelope were observed to move from Red Rim all the way south into Colorado. During the winter of 1983-84, the WGFD reported a significant movement into Colorado. The CSU study on the Red Desert documented antelope movements from Chain Lakes to Bitter Creek and back nearly to Bairoil during the same 1983-84 winter. This was a movement distance of nearly 150 miles during a very severe winter when a "snow belt" was almost universal.

Reclamation

- RME comments on proposed DEQ regulations: Has RME said that premining shrub densities could not be reestablished?

RME's comments on DEQ's proposed shrub standards have been taken out of context. We suggested that the proposed shrub standard may be too high because shrub production goals may be best achieved at lower densities.

AD The DEQ is using shrub density to predict cover and production based on production per plant in existing stands. But less dense stands can result in larger plants with more production per plant than undisturbed plants which exist in dense stands. Higher density is not always better for wildlife habitat and predisturbance densities may be less valuable to antelope than less dense, more robust shrub stands.

RME was quoted as saying that transplanting sagebrush was not economically feasible. Again, our comments were taken out of context. The actual statement is that total reclamation using only a tree spade is not feasible. Mature transplants can be an important part of an overall reclamation plan. However, no single method (such as a tree spade transplant) is suggested by RME as a practical reclamation approach.

- How fast does sagebrush grow?

AE Sagebrush can grow more quickly than 12 inches in 20 years, as the NWF suggested during the hearing. Anyone who has fought to keep sagebrush from invading fields and yards in Wyoming can testify that sagebrush can grow more than 0.6 inches per year.

AD See response to comment No. 100V.

AE RME has not classified all of the shrubs in its transplant demonstration plot, but it is probable that most of the shrubs are basin big sagebrush (Artemisia tridentata ssp. tridentata). The sagebrush apparently most important to pronghorn is Wyoming big sagebrush (Artemesia tridentata ssp. wyomingensis). Growth rates for these two sagebrush subspecies are quite different. Growth rates for each of the subspecies vary from plant to plant, according to how mature (whether seedling, tubeling, or transplant) a given individual plant is. Growth rates of most plant species are generally influenced by the quality of the environment (soils, precipitation, etc.) in which they are located. The soil on RME's demonstration plot is generally deeper and of better quality than is soil on most of the steeper slopes in Red Rim. In addition, it is quite likely that increased precipitation during the early stages of establishment of the demonstration plot increased the growth rates of shrubs planted there. Any determination of the survival and growth rate of the various subspecies of big sagebrush in a reclaimed landscape is speculative. See responses to comment Nos. 100H and 100V.

The sagebrush plot on Red Rim is an example of rapid growth from both seed and transplants. Many of the seedlings grew over 12 inches in 4 years. The mature shrubs increased in size by an average of 178 percent between 1980 and 1982 alone. Shrub height was not measured, but the accompanying photos illustrate clearly that sagebrush plants do not require 20 years to grow 12 inches.

- Do monoterpenes influence antelope use of sagebrush?

AF The value of different accessions (local variety) of sagebrush to antelope cannot currently be predicted based on monoterpenes. Bruce Welch, a leader in monoterpene research, is the principal plant research physiologist, USFS Intermountain Forest and Range Experiment Station. Mr Welch suggests that those plants which are used by antelope should be the propogation source for reclamation (Personal Communication, 1985). Using this approach, valuable sagebrush accessions can be established reclaimed areas. The uncertain nature of monoterpene research is more properly left to be resolved by the scientific community.

Monoterpenes are any of various hydrocarbons found present in essential oils. Monoterpenes are widespread and have been found in all organisms tested for them. At least 30 different monoterpenes have been identified in sagebrush alone. (Tom Hobbs, Colorado Division of Wildlife Researcher, Personal Communication, 1985).

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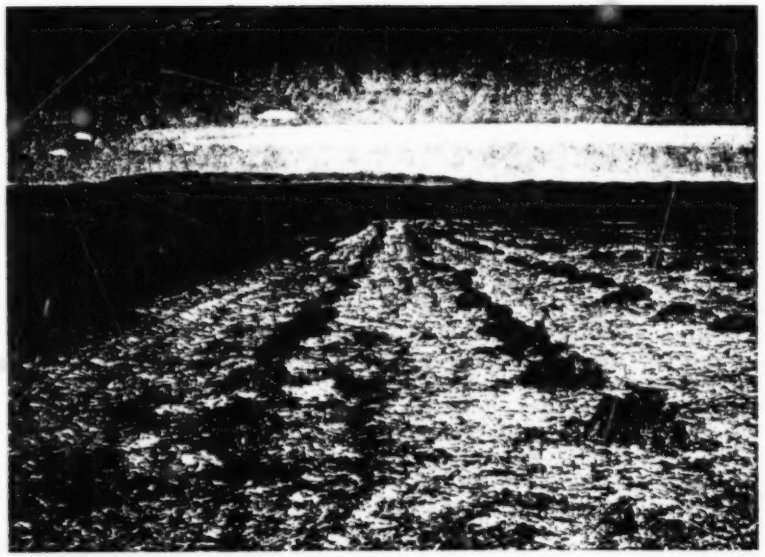
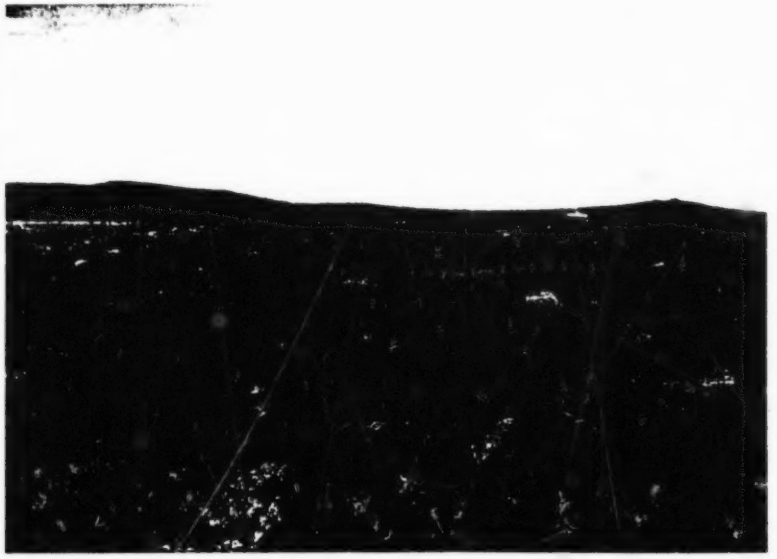
AF The extent to which monoterpenes affect pronghorn feeding preferences and requirements is unknown. We do know that the sagebrush on Red Rim is vital to the survival and health of wintering pronghorn. Until more data are available, the best approach to restore winter range is to require revegetation using seed, seedlings, and plantings from local sources.



Print M. Shrub plot in the spring of 1980. Sagebrush shown was transplanted during the fall of 1979.



Print N. Shrub plot in October 1984. Note invasion and vigorous growth. Same area as Print M.

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Print O. Close-up of invasion between sagebrush transplants, October 1984.

Print P. Robust transplants produce abundant seeds.

The effect of monoterpenes on grazing animals is not clear. Research suggests that monoterpenes may influence animal preferences for individual plants and the digestibility of the plant once it is eaten. The evidence is not conclusive. Welch, et al., 1983, summarize the literature: 3 papers suggest that monoterpenes affect forage preferences, 6 papers disagree, 5 papers suggest that monoterpenes inhibit digestion, and 13 challenge that notion. Welch's, et al., study found no correlation between deer selection from 21 different sagebrush accessions and monoterpene levels. They did show an important difference in mule deer use of the available accessions.

The possibility remains that the palatability of a sagebrush accession may be affected by the concentration of a particular monoterpene or combination of monoterpenes. Monoterpene concentrations vary with growing conditions. A plant may be low in monoterpenes if grown on one site and have a much higher monoterpene concentration on a different site. Other compounds which may affect palatability include artemisia acetate, methacrilin (Tom Hobbs, personal communication, 1985), tannin, (Julius Nagy, Colorado State University Professor of Wildlife Biology, Personal Communication, 1985), and Coumarin (Welch and McArthur, Unpublished Data, 1985).

The relationship of monoterpenes and palatability has been studied with various herbivores including sheep, goats, pygmy rabbits, mule deer, and sage grouse. Forage preferences vary with species. Sheep prefer one accession of sagebrush while mule deer select another. Goats were influenced by monoterpene concentrations in pelleted feed while sheep were not. Definitive work with antelope remains to be done.

Monoterpene research is valuable because it has made us aware that not all sagebrush plants even of the same subspecies are equally valuable to antelope. There may be considerable heterogeneity in a seemingly homogeneous stand of sagebrush. Further testing may identify the accession(s) present on Red Rim. Until research can identify palatable accessions of sagebrush, individual plants known to have been used by antelope should be used as parent stock for Red Rim reclamation. If undesirable sagebrush accessions do occur, it may be possible to increase the value of the winter range by replacing only the preferred accession(s) during reclamation. Thus, reclamation might not only mitigate mining impacts, but may actually improve winter range forage.

We do not know if monoterpenes influence antelope. We do not know if there are critical monoterpene levels in sagebrush on Red Rim. The practical test is that antelope consume and apparently do well on sagebrush now growing on Red Rim. The native sagebrush population should be used as seed source for sagebrush reclamation.



- Can steep slopes be reclaimed and be stable?

Questions raised about slope stability can only be answered in detail by an engineering analysis. But, most people would agree that blocky material can be spoiled at steeper angles or spoiled in steeper slopes with good stability. Normal spoil waste will have an angle of repose (the angle at which broken material can be stacked naturally) of about 34 degrees, or 1.5 horizontal to 1 vertical. Fine material will have a repose angle less than 34 degrees and blocky material a greater angle than 34 degrees. By choosing material carefully and taking other precautions, steeper

natural slopes can be emulated. Tracked and special equipment can operate on these slopes and even some rubber-tired equipment with special procedures over short slopes.

AG

We would direct attention to the data in the PED/EIS on page IV-29 where the slope frequency is displayed. As shown in figure A, slopes above 15 percent (8 degrees) would probably represent less than 8 percent of the total area. A visual average of the frequency diagram would seem to indicate an average slope in the 8 percent to 10 percent range (a steep highway grade), not the 40 percent slopes mentioned by the Wildlife Federation. This is not to say there are not localized steep areas, but the available information would indicated that the area impacted by such very steep slopes would be small.

AG Section IVC has been revised to include further discussions on mass stability.

OSM performed its hillslope gradient frequency analysis on USGS 7.5-minute topographic quadrangles with 20-foot contour intervals; about 120 to 150 measurements of aspect and hillslope gradient were made on the sections analyzed. Maps of this scale may not adequately represent the gradient and orientation of short but steep hillslope segments (e.g., those occurring in steepsided draws) that may be important as shelter for pronghorn.

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- Can reclamation be performed economically and would other methods than a dragline be more expensive?

AH

RME presented information in the testimony demonstrating that reclamation costs can be minimized by choosing appropriate methods and equipment; that on a cost per ton basis, reclamation costs should be on par with existing operations; and that not all areas of reclamation bear the same costs.

We would like to restress the importance of choosing the most appropriate methods and equipment. By doing this, much of the cost often attributed to reclamation can be mitigated. For example, if you choose a method that performs regrading as you also remove waste material, then the cost of

AH See response to comment No. 111C. Section IVA has been revised.

reclamation will be considerably reduced. Conversely, you may choose a method that has high reclamation costs but the waste removal cost is substantially cheaper, i.e., a dragline method.

Thus, while costs of reclamation may appear high or low, it is only the overall cost per ton that will determine a project's economic viability.

Additionally, a dragline is often selected because of its low cost per yard of waste removal. However, if the mining method requires that a yard of waste be rehandled (moved again), then the dragline cost advantage begins to dissolve. Other kinds of equipment are usually more expensive on a per yard basis but, once again, it is the entire cost, not the cost of one activity, that must be evaluated.

Mine Planning

o Is there a market for Red Rim coal?

The market for "western coal" has undergone many changes in the past 15 years. Much of what we refer to today as the "market" for western coal was created by the passage of the Clean Air Act in 1970, and the subsequent development of a New Source Performance Standard for sulfur dioxide of 1.2 pounds $SO_2$ per million Btu of fuel burned. This standard made low sulfur coal, which is plentiful in the West, more valuable because plants could burn the coal without the need to also construct costly and, what at that time was perceived to be, ineffective scrubbers to remove $SO_2$ from the flue gas of plants burning high sulfur coal.

Much of this "advantage" of western coal was eliminated in 1977 with the passage of the Clean Air Act Amendments which required all coal-fired plants to utilize scrubbers regardless of a coal's sulfur content. Today, western coal competes with all other fuels on the basis of the cost of the fuel.

What this has meant is that actual and perceived markets for "western coal" have undergone fairly marked changes over short time periods. Further, as coal utilities have become more sophisticated in their understanding of coal combustion characteristics, unique quality niches for different fuels have appeared. What might to some appear to be an expensive coal can suddenly become a bargain if a unique quality niche can be found.

A1

A1 See section IIIB for a discussion of the supply of and demand for petition-area coal.

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Red Rim coals have followed the national pattern generally as a western coal. In the early 1970's Red Rim, as a low sulfur coal, was "sold" conditional upon the ability to form a logical mining unit (LMU) by acquiring federal leases. This venture collapsed due to the inability to acquire federal leases. Then, due to the redefinition of utility NSPS requiring scrubbers, Red Rim coals appeared to lose value.

In the early 1980's, Red Rim was considered as a blending coal for a proposed coal gasification/power plant complex because of its low sulfur content. Once again, Red Rim coals seemed to have a market.

With the 1982 recession, lower energy uses and the drop in oil and gas prices generally removing synthetic fuels from the picture, Red Rim coals again seemed overpriced.



However, with concern growing about the impacts associated with the utilization of high sulfur fuels because of "acid deposition" and the pickup in the utilization of electricity, there is once again an increase in the "value" of higher Btu, low sulfur coals. Regulations are likely to be promulgated in 1985 that will require older plants currently burning high sulfur coals to reduce their $SO_2$ output. For many of these plants, the lowest cost alternative will be the use of low sulfur coal. The possibility that Red Rim coals will find a market once again looks realistic.

The above discussion is intended to show that Red Rim coals have had and will continue to have selected market opportunities. However, from the standpoint of the petition, that is not the point. The real point is that unless no

acceptable alternatives for development in compliance with SMCRA are possible, mineral owners should be given the opportunity to seek markets and develop mine plans which can then be scrutinized under SMCRA for compliance with the Act. The viability of the market does not affect the suitability of the tract.

- What is the disturbed area inside the critical winter range boundary?

This answer is in response to Mr. Bergman's questions seeking to define the real extent of disturbance.

As RME stated at the hearing, the Emling plan total disturbed acreage was remeasured, resulting in a value of 9,032 acres disturbed. After the hearing, RME remeasured the areas again, which resulted in a value of 9,129 acres, well within normal repeatability requirements. Enclosed with these comments are full-scale maps identifying the disturbed areas, which can be used as overlays to the Emling mine plan for further verification. Accessory areas such as haulroads and railroad right of way were measured from the Emling map.

The following table summarizes the areas and answers Mr. Bergman's question:

328

AJ

AJ

OSM's estimate, given in section IVB, is that 5,600 acres of the critical winter range (32 percent) would actually be disturbed by surface mining and facilities. This estimate closely agrees with RME's estimate. However, OSM estimates that approximately 8,600 acres of the critical winter range (49 percent) would be subject to various mining-related disturbances (e.g., physical barriers to pronghorn movements, such as spoil piles and fences, noise, and traffic) that could preclude pronghorn use of this acreage.

Red Rim Disturbance Area
Emling Mine Plan, 1978
(Acres)

| | |
|---|---|
| Total Acreage Disturbed | 9,129 |
| Acreage Disturbed Outside the CWR | 3,076 |
| Acreage Disturbed in No-occupancy Area | 19 |
| Total Acreage Disturbed in the CWR | 6,034 |
| Acreage in the CWR | 17,582 |
| Undisturbed Acreage in the CWR | 11,548 |

Some 34 percent of the CWR would be disturbed under the Emling plan. This number could be reduced by the mitigation measures RME presented in its testimony.

330

- Can disturbance be reduced?

As RME stated in its testimony, choosing appropriate methods and equipment can reduce disturbed area. A prudent operator will normally choose a course of least disturbance consistent with his methods because a disturbed area represents an unproductive expense. Therefore, it is not in his financial interest, nor his environmental interest, to disturb any area not required by mining operations.

AK

Additionally, one factor not presented at the hearing is production level. It is as likely, if not more likely, that the mine at Red Rim will produce less than the 2,000,000 ton per year rate used in the Emling mine plan.

AK

Assuming the entire coal lease tract is mined, mining the coal at a reduced rate could reduce the cumulative disturbance summarized in table IV-1 by a factor of 4, but the life of the mine would increase by about four times. Therefore, while reducing the rate of mining could reduce the extent of the impact to pronghorn at any given time, it would also increase the duration of the impact. The total acreage disturbed by mining and mining-related disturbances would be about 12,000 acres. This total would not be affected by the mining rate.

For example, if production was 500,000 tons per year, the disturbed area would be reduced by a factor of 4 or more to less than 100 acres (average) per year. This means that the cumulative disturbance until reclamation release (12 years) would also be reduced.

AL RME believes, as we feel most Wyoming residents would believe, that 20 to 60 years is an unfounded estimate of the time necessary for a sagebrush to grow to a foot in height.

AL See responses to comment Nos. 100V and 111AE.

- Can the interaction of the topography and wind currents be preserved?

RME would first point out that there is no factual data demonstrating that this is a critical element except in the general context of providing wind swept grazing areas.

While some earth must be displaced, the approximate original contour provisions of SMCRA would dictate that, in general, elevations and slope aspects will be returned during the reclamation process. Therefore, the interaction of the wind direction and topography will be preserved in general terms.

AM As a mine plan is submitted for permitting, studies would then need to be done to define the critical parameters, i.e., shape, orientation, slope, or height, that must be reconstructed. Also at this time, enhancement measures such as aspect changes, upgrading other areas, creating depressions, and slope changes can be refined to create quality grazing areas that can be added or substituted for other areas.

AM The results of Irwin and others' (1983) study generally support the contention that both the assortment of topographic orientations and the typical winter-storm wind patterns found at Red Rim are key to rendering it critical winter range for pronghorn. It is not entirely clear to what extent postmining topography would have to be reconstructed to precisely approximate existing topography to maintain this critical-winter-range function after reclamation. More detailed analyses of topographic influences on snow-accumulation patterns, soil moisture, and vegetation patterns could identify other landscape configurations that would function as effectively. However, because such analyses have not yet been attempted, the PED/EIS analysis of reclamation success includes one scenario, reclamation scenario 1, whereby Red Rim would be reconstructed to a postmining landscape that very closely approximates the premining topographic condition.

Many of these items are currently being stipulated under SMCRA mine permits and being performed within current coal market prices.

This entire process would reemphasize the importance of prior planning to achieve the needed and desired results at costs consistent with the need to competitively market the coal.

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EXHIBIT A

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY
LAND QUALITY DIVISION
GUIDELINE NO. 5

WILDLIFE

This document is a guideline only. Its contents are not to be interpreted by applicants or DEQ staff as mandatory. Its preparation is the result of numerous requests from applicants who expressed a need for a checklist to assist them in preparation of a comprehensive initial application containing all required information.

The guideline is provided to assist in conducting wildlife inventories and in preparation of wildlife sections of mining and reclamation plans. Wildlife as used here means both terrestrial and aquatic wildlife. Suggested methods are designed to provide comparable data in mining permit applications, yet provide flexibility of choosing survey methods. Alternate methods should be cleared with the Game and Fish Department or DEQ to avoid delays in permit approval. Data presentation should follow Appendix 1. The detail of the wildlife survey may be reduced depending upon the quality and size of the proposed permit area.

The requested information will allow:

1. Determination of wildlife numbers, diversity, and habitat affinity prior to mining.
2. Assessment of impact upon wildlife and wildlife habitat as a result of mining and determination of the need for mitigation.
3. Evaluation of the effectiveness of the reclamation plan and the fish and wildlife mitigation plan.
4. Comparison of water quality in streams before and after mining.

I. Wildlife Inventory (Appendix D-9)

A. Description of the Vertebrate Fauna of the Area

(1) Potential
This includes species which should occur in the area according to literature sources. This list should be compiled before undertaking field studies, but after

a visit to the site. Common sense should be used in preparing the list. If habitat for a particular species is not present, the species should not be listed, even though its range overlaps the mine site.

(2) Actual
This includes species on the proposed permit area or adjacent area, based upon observations of animals or their sign during trapping or census activities, existing data for the area, and reliable reports from local observers such as state, federal, and company biologists and local ranchers. These can be indicated on the potential species list by an asterisk.

(3) Habitat Affinity
This is one of the most important aspects of the fauna description. This information reflects the tendency of a species to select certain types of habitat or certain habitat features. Simply stated, habitat affinity is where animals occur most often on the proposed permit area. This should be stated quantitatively--"27% of mule deer observations on the site were made in sagebrush-grass habitat." Observations used to determine habitat affinity cannot be based upon one or two days' data. Animals with large home ranges (big game, mammalian predators, raptors) move on and off the site periodically. Several observations made during each season provide the best information. Some of these may be made incidentally to other work. Habitats important for feeding, watering, cover, and reproduction should be determined for each species. Interspersion of these habitats should be noted.

For some animals, habitat affinity on the proposed permit area may be the same yearlong. For example, mule deer on many coal leases may only be found in rough, broken terrain, in riparian habitat, or in stands of scattered trees and tall shrubs. Bushy-tailed woodrats and cottontail rabbits may only occur along a rimrock. There will be a relationship between some wildlife species and certain topographic or vegetative features on all areas surveyed. The occurrence of areas of special importance to wildlife (rimrocks, lakes, ravines, riparian habitat, etc.) should be noted in the wildlife section of the baseline data as well as in the plan for wildlife mitigation in the mine plan. Identification of habitat affinity allows determination of the value of the site to various species of wildlife and comparison of the value of the site before and after mining. Whenever an animal or its sign is located, the habitat in the area should be identified.

B. Seasonal Data Collection

An adequate assessment of wildlife occurrence in an area cannot be made in less than one year. "Seasonal" as used in this guideline does not mean sampling in spring, summer, fall, and winter for all species. The following are data collection "seasons" required for various groups of wildlife:

(1) Big Game
All Seasons--numbers, distribution and habitat affinity. Particularly important are winter occurrence (January - February) and production pre- and post-hunt (July - August) (October - November). In arid areas late summer-fall occurrence is also very important.

(2) Upland Game Birds
Breeding counts (April)
Production of young (Mid-June - August)
Winter occurrence (December - Mid-February)
Seasonal habitat affinity

(3) Raptors
Nest location and production (April - Mid-July)
Winter occurrence (December - Mid-February)

(4) Waterfowl and Shorebirds
Migration - Spring (April - May)
Migration - Fall (September - November)
Breeding production (June - July)

(5) Passerine Birds
Breeding (late May - June)
Winter (December - February)
Seasonal habitat affinity

(6) Mammals
Species occurrence (all seasons)
Abundance-trapping (late August - October)
Predators (August - September, January - February)
Rabbits (August - September)
Seasonal habitat affinity

(7) Endangered Species
Peregrine falcon (April)
Black-footed ferret (early July - late September)
Bald eagle breeding and nesting (April - Mid-June)
Roosts or feeding areas (January - February)

(8) State-listed Rare Species
All year (species listed in last chapter of Current Status and Inventory of Wildlife in Wyoming, 1977, Wyoming Game and Fish Department.)

(9) Reptiles and Amphibians
Breeding (May - July)
Abundance (May - July)
There are species variations and altitudinal variations for both groups.

(10) Fish
Breeding (March - November, with species variation)
Abundance (all year)

C. Adequate Data Analysis

Data should be presented in Appendix D-9 of the application for a permit to mine. Data collection techniques should be described at the beginning of the Appendix in sufficient detail that they could be repeated. An analysis and thorough discussion of the data should be included by groups of animals (raptors, small mammals, big game, etc.). Animal sightings should be plotted on a map of the proposed permit area or adjacent area, either a topographic or vegetation type map. The map should be no larger than 8 1/2" x 14" to provide easy copying for use during field review of the application. Every captured small mammal need not be plotted, but at least one location for each small mammal or bird species should be included for each vegetation type in which they were found. Locations of all transects or plots should be indicated on the map. If it is not feasible to provide this information on a small scale map because of the extremely large size of the permit area, the information can be placed on a larger map. Where maps larger than 8 1/2" x 14" are submitted, two copies of the map should be included with each application.

The wildlife section should specify dates of data collection, include a complete description of methods used, and summarize anticipated impact on wildlife on the permit area and adjacent area. A discussion of fencing should be included.

All wildlife data discussion should be closely correlated to habitat types. In which types were animals found? Did use of habitat types vary by season? Did animals feed in one type and use another for cover?

Special Studies

In some cases, companies will encounter special problems on a site which require special studies of a problem-solving nature or data in more detail than can be obtained in a baseline study. Such problems include large numbers of breeding game birds on-site, blockage of big game migration routes, presence of large bald or golden eagle roosts, or presence of critical wildlife habitat as defined by the Wyoming Game and Fish Department on the permit area. These will usually be studies of longer duration.

E. Techniques

(1) Suggested Techniques

Techniques for most species should follow the Handbook of Biological Techniques (1977), Wyoming Game and Fish Department or Wildlife Management Techniques (1969), The Wildlife Society. Copies of the former may be obtained from the Publications Section, Game and Fish Department, Cheyenne, WY 82002.

a. Vegetation
Vegetation analysis following DEQ Guideline #2 is sufficient for wildlife. Black-and-white photographs of each vegetation or habitat type sampled for wildlife should be included. Photographs should be original prints, not Xerox copies.

b. Habitat Types
Determination of habitat types should be made by a wildlife biologist. These may correspond to identified vegetation types on some sites, but on others there will be unique areas that are not vegetation types but that also need to be sampled for wildlife, particularly in the case of small mammal trapping or searches for animal sign. These include rimrocks, ponds, and ravines. Acreages of all habitat types should be provided.

c. Big Game
On large sites, aerial surveys may be required. These should follow the Handbook of Biological Techniques and be augmented by ground searches, either by vehicle or on foot. Deer cannot be counted accurately from the air, particularly if conditions are not perfect or if a great deal of broken terrain, tall shrubs, or trees are present on-site. Sexes and ages should be noted for all animals seen in summer, fall, and winter. Surveys for big game, because of the mobility of the animals, should include the permit area plus at least a two-mile perimeter. The existence of seasonal concentration areas for big game should be documented.

d. Upland Game Birds
Techniques should follow the Handbook of Biological Techniques. Breeding ground searches of large sites may require both aerial surveys and ground searches. Others on small sites can be accomplished by ground searches. Searches should be made for

all upland game bird species known to occur in the vicinity of the permit area. It is often helpful to contact landowners on or near the site to locate breeding grounds, or to contact local Game and Fish Department personnel. Once breeding grounds are found, the number of birds using the site should be determined. Production surveys, conducted from a vehicle or on foot, should be made to determine use of the site by hens with young, and numbers of young produced on-site. Winter surveys should be made to determine the number of birds using the site during that season. Upland game surveys should include the permit area and a two-mile perimeter. A mine within two miles of a strutting ground could be impacting grouse.

e. Waterfowl and Shorebirds
All areas of permanent or ephemeral water should be surveyed to determine species and numbers of waterfowl and shorebirds on the permit area seasonally. Numbers of waterfowl and shorebirds produced on-site should be determined, if possible, from observations made by vehicle or on foot.

f. Raptors
Appropriate raptor survey techniques are available from the Game and Fish Department (Raptor Guidelines). Locations of raptor nests, feeding areas, and any roosing sites should be determined. Some nests may be located during aerial flights for big game or game birds, but a separate flight is necessary over large areas because it is difficult to locate raptors while also looking for other species. Other nests can be located during ground surveys. Production of young should be determined, but extreme care should be taken not to unduly disturb nesting birds, particularly early in incubation. Before surveying raptors, biologists should read the publication by Fyfe and Olendorff. Special care should be taken to ensure that nest failures do not occur because of the biologist's activities. Raptor surveys should include the permit area and a two-mile perimeter. For raptors which may range 10-15 miles from a nest, this is minimal.

g. Passerine Birds
Nongame bird surveys should be conducted in each vegetation type, and in each unique habitat if the habitat type is large enough. These surveys can be conducted by means of Emlen strip transects, belt transects, or international map plots. All surveys must be stratified by vegetation type, with at least two transects or one map plot per type. Some transects or plots should overlap two habitat types, to determine species occurring in habitat edges. See Appendix 2 for a description of the belt transect. Starting points and orientation of transects or plots should be randomly selected. If stratified random sampling is used, sample plots or transects can be located in areas without the observer biasing selection of locations. Surveys should ideally be replicated on two consecutive days, then again one to two weeks later, to take into account temporal variation and weather effects on bird activities. However, sampling on three or four consecutive days is acceptable.

h. Other Mammals
Small mammal occurrence should be determined by trapping on plots or along transects which have been randomly located. At least two plots a minimum of an acre in size or two transects at least 200 meters long should be placed in each vegetation type, with a goal of at least 150 trap-nights on the site. Some transects or plots should overlap two habitat types to sample mammals occurring in habitat edges. Live traps are preferred, but snap trapping can be used on sites less than a square mile in size or where selective trapping is needed. Trapping should be conducted for at least three 24-hour periods. Recent research at Utah State University suggests that 7-10 days are required to get the best density estimates. However, for assessment of relative numbers of these mammals on mine sites, three days is sufficient. Setting traps in mid-afternoon and checking them the next morning allows capture of both diurnal and nocturnal animals while minimizing trap mortality. Selective trapping is required to correctly determine occurrence of all species on the site. This may require switching baits or use of specialized traps like pitfall traps in order to sample all species. A system utilizing concurrent snap trapping and live trapping is acceptable.

Occurrence of medium-sized mammals can be determined from sign or observation. Lagomorphs can be sampled by means of a driving or walking transect. If driving is the method used, the width illuminated by the headlights can be used as a belt transect. Transects should be run on two consecutive nights just after dark, when there is no precipitation, and when the wind is no stronger than 15 mph.

One of the few predator survey methods in current use is the U.S. Fish and Wildlife Service Scent-Post Technique (See Appropriate Literature). Although the method is biased toward coyotes, many species of carnivores visit the scent stations. Equipment for use of the technique can be obtained from USFWS, Pocatello, Idaho, in return for the data collection. If weather permits, the scent-post survey should be run on four consecutive nights in late August or early September, after young carnivores have left the dens.

The site should be surveyed for sign of predators during surveys for other groups of animals at other times of the year. One method of obtaining predator information is by looking for sign along walking transects crossing the permit area.

i. Endangered Species and State-listed Rare Species
If prairie dogs occur on or within one-mile of the permit area, the density of active prairie dog holes in the town should be determined and a ferret search should be conducted. The ferret search should follow techniques described in Appendix 2. The occurrence of federally listed rare or endangered species or species that are rare in Wyoming should be determined during the course of other field work. Surveys should include all lands within two-miles of the permit area. State-listed rare species are contained in Current Status and Inventory of Wildlife in Wyoming (1977), Wyoming Game and Fish Department, Cheyenne. The occurrence of wintering bald and golden eagles should be evaluated by means of aerial or ground searches of the mine site.

j. Reptiles and Amphibians
Occurrance should be determined by trapping, capture, observation and calls. Drift fences are effective for collecting snakes and migrating amphibians. Only individuals absolutely necessary for positive identification and voucher specimens should be killed and preserved. Reptiles and amphibians can often be located, identified, and left unharmed - especially during the spring and early summer breeding season. Most frogs and toads can be identified by their calls. Special emphasis should be placed on documenting the occurrence, in likely habitats, of high management priority species as described in Current Status and Inventory of Wildlife in Wyoming (1977).

k. Fish
Species occurrence should be documented for all waters capable of supporting fish. This information has been collected for most waters by the Wyoming Game and Fish Department. Seines, dip nets, and gill nets will yield good species composition. Mining permit applications should include an assessment of mining impacts on fish populations and measures which will be incorporated to minimize and avoid damages to fisheries.

l. Benthic Invertebrates and Periphyton
The importance in surveying these organisms lies in their value as biological indicators of water quality. Surveys should be designed to assess the health of a specific stream or lake and provide a baseline for monitoring changes. Species lists or data without interpretation are of limited value. Determination of the importance of individual waters should be made prior to initiating studies. Only lakes and streams with permanent water that supports fish need be sampled.

(2) Use of Game and Fish Department Data

Game and Fish Department data are public information and available to companies from the Cheyenne Office. Seasonal distribution information for big and small game has been summarized on 1/8" per mile or 1/2" per mile overlays for the 1:500,000 scale BLM State Land Status map or for BLM surface management quads, respectively. These maps may not provide sufficient detail for small mine sites, but are useful in selection of sites and in determining seasonal use of potential sites by game animals. Copies of maps may be obtained from the Cheyenne Office of the Game and Fish Department. Data, where they are available, can be obtained by request from field personnel, Game and Fish Department district offices, or the Cheyenne Game and Fish Department Office. Data are also available from the Bureau of Land Management and the U.S. Forest Service.

II. Mine Plan - Plan for Mitigation

Once potential impacts have been assessed, methods to minimize impacts to wildlife during and after mining should be presented. These will often be tailored to fit individual sites. Acceptable mitigation includes proper fencing (See Guideline 10), obtaining or providing recreational access, replacement of dead snags, creation of rock piles, brush piles, rimrocks, or

other wildlife cover, creation or development of water sources, reestablishment of raptor nesting sites, wildlife-oriented reclamation, problem-solving research such as development of methods to move sage grouse strutting grounds, and other habitat improvement projects.

III. Reclamation Plan

For wildlife, the goal of reclamation should be restoration of species diversity following mining. Much reclamation is designed to produce grassland or agricultural crops, neither of which benefits wildlife as much as shrubland or a mixture of shrubs and perennial grasses and forbs. The reclamation plan should include seeding or planting native plant species, preferably a mixture of some of those species on the permit area prior to mining. Seed mixtures will have to be tailored to soil and topography--one seed mixture will not suffice throughout a large site. Topographic diversity and plant species diversity are both essential to replacing wildlife habitat. Streams supporting fisheries and other water sources should also be restored. Some factors to consider in mining and reclamation are presented in "Considerations for Wildlife in Industrial Development and Reclamation" (1976), Wyoming Game and Fish Department, Cheyenne.

IV. Monitoring

Companies should monitor wildlife on the permit area during mining. This can occur in less detail than the baseline study, but should consist of the same types of data concerning wildlife species on the permit area and habitat use by wildlife on the permit area. These data should be included in the annual report.

V. Scientific Permits

Scientific permits are required for collection of fish and amphibians and reptiles, for small mammal trapping or to handle any wildlife species. These can be obtained via a letter of request to the Assistant Chief Game Warden, (mammals and birds), or the Assistant Chief Fish Warden (fish and herps), State of Wyoming, Game and Fish Department, Cheyenne, WY 82002. The letter should state the time period, the location, the reason for trapping, the species to be trapped, and if removal is to occur, the number of individuals to be removed. A report must be submitted at the end of the calendar year for which the permit is valid. The report should include species trapped and numbers, and locations to the nearest 1/4 section. Failure to submit a report is grounds for denying renewal of the scientific permit.

VI. Appropriate Federal Laws

Companies should be aware of the provisions of the Migratory Bird Treaty, which provides protection for all migratory birds. If required, a permit to destroy migratory birds, their nests, or eggs should be obtained from the U.S. Fish and Wildlife Service. The Bald Eagle Act, amended in 1973, protects bald and golden eagles, their nests, young and eggs. The U.S. Fish and Wildlife Service and the Wyoming Game and Fish Department should be consulted about disturbance of eagles or their nests. The Endangered Species Act of 1973 protects rare and endangered species of wildlife. Those species on the most current list should receive special attention in premining assessments and in monitoring activities. Power lines and transmission facilities should be designed and constructed to prevent electrocution of eagles. The applicant should consult the specifications set forth in the following guidance manuals: Electric Criteria for Electric Transmission System (USDI, USDA (1970)); and REA Bulletin 61-10, Power line contacts by Eagles and other Large Birds (1973).

## Appendix 1

### DATA PRESENTATION

Data presentation in the wildlife section of the application, Appendix D-9, should follow or closely approximate the following scheme:

1. Description of areas sampled
   a. Location
   b. Topography
   c. Vegetative Composition
   d. Habitats
2. Methods
   a. Big Game
   b. Game Birds
   c. Nongame Mammals
   d. Nongame Birds
   e. Threatened and Endangered Species
   f. Reptiles and Amphibians
   g. Fish
   h. Benthic Invertebrates and Periphyton
3. Results and Discussion
   a. Big Game
   b. Game Birds
   c. Nongame Mammals
   d. Nongame Birds
   e. Threatened and Endangered Species
   f. Reptiles and Amphibians
   g. Fish
   h. Benthic Invertebrates and Periphyton
   i. Species Lists
4. Habitat Affinities (may be combined with Results)
5. Assessment of Environmental Impact of the Project (including indirect impacts - fencing, effects on recreation, habitat loss, change in topography, road kills, poaching, etc.)

The fish and wildlife mitigation plan should be included in the Mine Plan Section of the application. The monitoring plan should also be included here.

## Appendix 2

A. Black-footed Ferret Survey Procedures

1. Familiarize yourself with habits and differences between ferrets, long-tailed weasels and badgers by consulting literature sources.
2. Identify area proposed for survey (the permit area plus a one-mile perimeter).
3. Locate all prairie dog towns within the area using aerial photographs, ground searches, colony maps provided by the Bureau of Land Management and the Game and Fish Department, and conversations with ranchers.
4. Plot all prairie dog townson 7.5 minute series U.S. Geological Survey topographic maps.
5. Divide colonies into workable marked segments in preparation for systematic searching.
6. Conduct morning systematic surveys on previously selected areas of high burrow density.
7. Prior to walking surveys, scan colonies for black-footed ferrets using binoculars and spotting scopes, and also note the prairie dog age structure (number of adults:number of young).
8. Conduct walking surveys on the colony examining every hole 2 inches or more in diameter while looking for black-footed ferrets or the following signs:
   a. Trenches or stringers of soil 15-20 cm wide, 5-8 cm deep, and from .3-3.5 m long with a groove in the center.
   b. Prairie dog burrows plugged with soil.
   c. Skeletal material: (1) skulls of prairie dogs that have been chewed or show small tooth marks near the base, (2) skulls of black-footed ferret. If found, photograph them in place and mark the location prominently.

d. Fecal droppings from mustelid type animals--usually marked by segmentation and twisting when composed of hair, varying from dark brown to black in color, approximately 6 mm in diameter and 25-100 mm long.

e. Prairie dog behavior: upright posture and alarm chatter in response to predators.

9. In areas where a possible ferret sign is found, three to six continuous night surveys are recommended using the following procedures:

a. Locate and mark area to be spotlighted during the daytime survey and locate access roads to area.

b. Drive to the search area after dark or before sunrise, park vehicle, and wait 5 minutes before starting searches with spotlight. Using a 100,000 candle-power spotlight (hand held or vehicle mounted), sweep the light slowly back and forth across the colony looking for green eye shine. Use the spotlight for a minimum of 1 hour per stop in intervals of 5 minutes on and 5 minutes off. Conduct spotlighting 1-3 hours prior to sunrise and from 1-3 hours after sundown.

c. When green eye shine is observed, attempt to identify the animal. If identification is not possible, mark the location with flagging for future day and night surveys.

10. If a ferret or ferret sign is located, notify the Wyoming Game and Fish Department.

B. Bird Censuses - Belt Transect

1. Rationale and utilization...These censuses have been tested by Hickey and Mikol (1979) on coal lands in Montana and Wyoming. This type of survey can determine composition, density, relative abundance, baseline indices of population levels for particular habitat associations, breeding diversity, nest site characteristics and general natural history of the breeding bird population. This is a particularly useful survey method for the extensive collection of qualitative and quantitative data over a large area where the establishment of permanent mapping plots are unnecessary or unfeasible. These transects may be used to sample within or between different habitat types and physiographic site locations.

2. Sampling procedures...Each belt transect will be 100 m wide and 1000 m long, except in rough terrain or riparian vegetation where narrower belts may be required for accurate counts. Each belt transect will be established as shown in Figure 1. Within each transect, two subtransects 50 m x 1000 m are created. At each 100 m the boundary intercepts, e.g., 2, 2A and 2', are identified with one highly visible color flagging wire marker while at each subtransect midline intercept , e.g., 2a and 2a', a different highly visible flagging wire marker identifies those points. As in the mapping plot census the walking census observer must know with sufficient accuracy his own position and the position of any bird observed within the transect. The 100 m wide transect provides the best measure of low density species combined with greatest efficiency of census taking. Preferably two persons should conduct each census simultaneously with each observer censusing a belt 50 m wide (0A and A0'). Each census taker may walk anywhere within the subtransect belt to provide the coverage necessary for each census. Position orientation will be made from the subtransect midlines ab and a'b' and the boundary markers 0-10, AB and 0'-10'. Every census will begin 0.5 hours after local sunrise and shall not continue beyond 9:30 a.m. If only one census taker is available, the census may be taken in one or two mornings, e.g., A-0' to A-5' and A-5 to 0-A then to A-5 to B-10 and B-10' to A-5'.

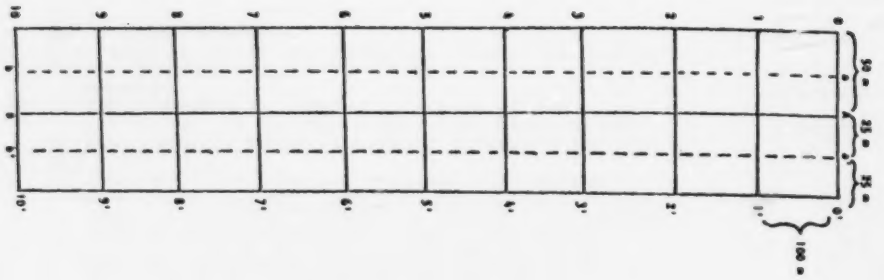
C. Bird Censuses - Emlen Transect

See reference in Appropriate Literature

D. Bird Censuses - Map Plots

See reference in Appropriate Literature

Figure 1. Belt Transect Dimensions and Configuration



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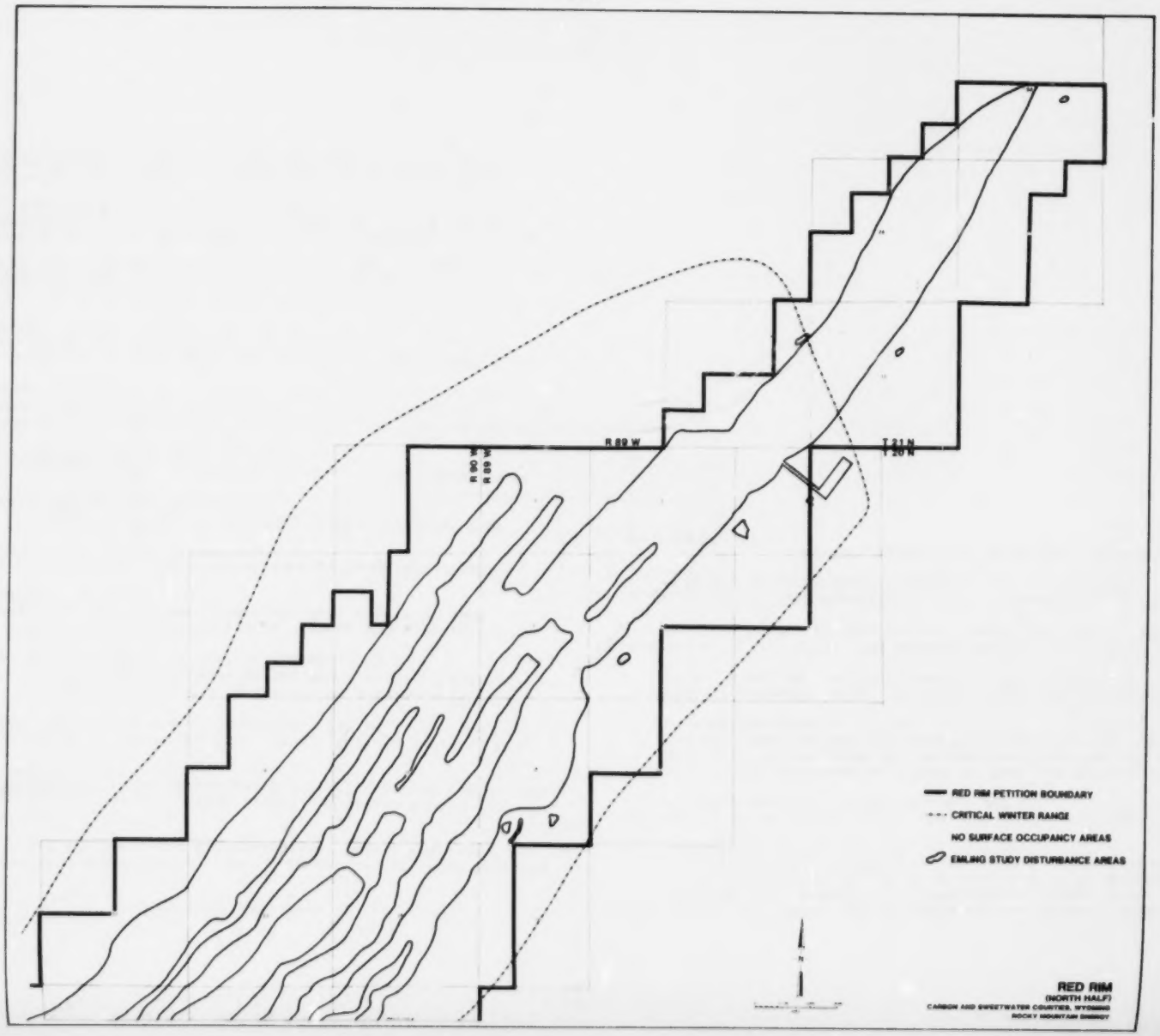
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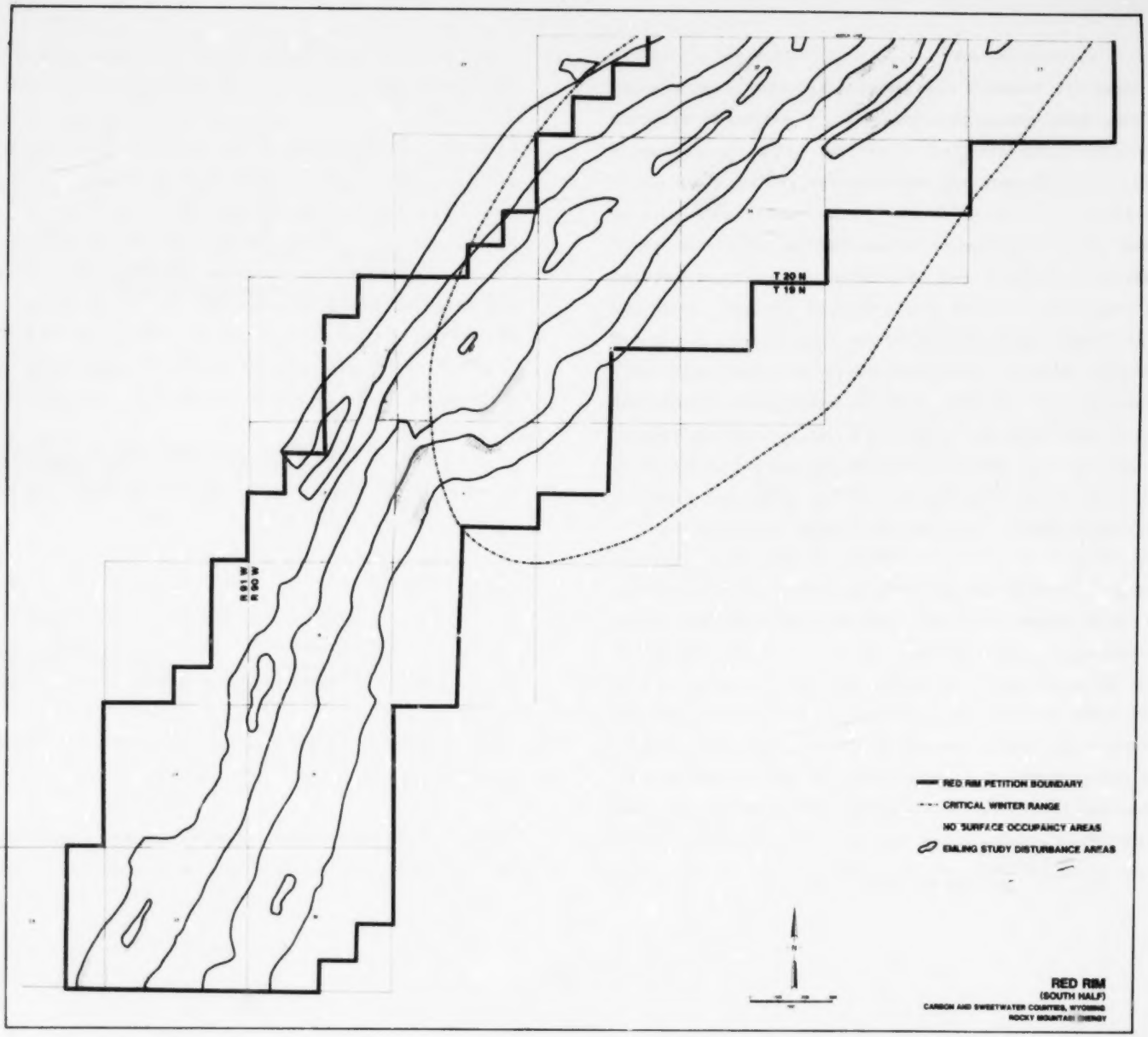
NO SURFACE OCCUPANCY AREAS
EMLING STUDY DISTURBANCE AREAS
RED RIM
(NORTH HALF)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RED RIM PETITION BOUNDARY
CRITICAL WINTER RANGE
NO SURFACE OCCUPANCY AREAS
EMLING STUDY DISTURBANCE AREAS
N
RED RIM
(SOUTH HALF)
CARBON AND SWEETWATER COUNTIES, WYOMING
ROCKY MOUNTAIN ENERGY

TO: WYOMING ENVIRONMENTAL QUALITY COUNCIL

AND

THE UNITED STATES DEPARTMENT OF INTERIOR, OFFICE OF SURFACE MINING, RECLAMATION AND ENFORCEMENT

RE: IN THE MATTER OF DESIGNATION OF 20,480 ACRE TRACT, KNOWN AS "RED RIM", AS UNSUITABLE FOR SURFACE COAL MINING OPERATIONS ON BEHALF OF INTERVENOR TAYLOR LAWRENCE

John A. MacPherson
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Rawlins, WY 82301
307/324-2713

## COAL MINING ON RED RIM

The National Wildlife Federation and the Wyoming Wildlife Federation have filed a petition in which they are requesting that the federal and state governments designate 10,160 acres of private lands and 10,320 acres of federal lands as unsuitable for surface coal mining. The area in question is known as "Red Rim" and is located six and one-half miles west of Rawlins, immediately adjacent to the "Daley Ranch". If the area is designated as unsuitable for mining, it would mean that the proposed federal coal leases would not be let nor would mining be permitted on the private lands.

The Wildlife Federation's petition alleges that mining the Red Rim tract would adversely affect the pronghorn antelope. In an effort to put the matter in proper perspective, some general factual background may be in order. The origin for the present interest in the development of Red Rim coal had its beginning in June, 1979, when the Secretary of the Interior adopted a new program for management of coal resources on federal lands. In developing this new program, the Secretary set a tenative lease target of 531,000 acres in what was designated as the "Green River/Hams Fork Region" which encompassed lands located in Wyoming and Colorado.

During the next five weeks, expressions of interest were submitted by which various areas were designated as being potentially suitable for future coal development; Red Rim was included as a possible site in this process. In July, 1979, a

land use plan was adopted which identified coal lands as being acceptable for further consideration for leasing; again, Red Rim was included.

As part of the new program for coal management adopted by the Secretary of Interior, a five-member regional coal team was organized. The coal team consisted of one representative each from the Wyoming and Colorado BLM offices, as well as one representative each from the Colorado and Wyoming Governors' offices. (Warren White was the representative for Governor Herschler.) The fifth member of the coal team was also from the BLM. It was the responsibility of the coal team to hold public hearings and, ultimately, designate certain areas as suitable for leasing.

The coal team was officially organized in August, 1979, and, thereafter, held four scoping hearings on various dates within the region, where the public was offered an opportunity to express concerns about matters that should to be studied.

In December, 1979, the regional coal team met and various tracts were ranked and alternative tracts selected based on the information developed and in an attempt to satisfy the target goals set by the Secretary of the Interior; included in this ranking was the Red Rim tract. Tracts were ranked after giving consideration to three catagories: (1) coal economics, (2) impacts on the natural environment, and (3) social economic impacts.

Based on this ranking, the regional coal team selected five alternatives in the form of various combinations of tracts for cumulative environmental analysis. Public meetings were held in the region to identify issues for special attention in the environmental analysis. The draft Environmental Impact Statement (EIS) was published in April, 1980. Over sixty people or organizations provided comments on the draft EIS.

In July, 1980, over sixty-nine written comments were submitted relative to the leasing process and the draft EIS. Included in this were comments by the Rocky Mountain Chapter of the Sierra Club, The Friends of the Earth, Wyoming Game and Fish Department, the National Wildlife Federation, petitioner herein, the Environmental Protection Agency and the Federal Fish and Wildlife Service. Many of these letters, of course, addressed concerns relative to Red Rim and the antelope situation which are again being addressed by these proceedings.

In July, 1980, the regional coal team again met and confirmed its previous decision concerning ranking and alternative composition of the tracts with no changes. Under the concept, tracts were to be offered for sale over a ten month period, beginning January, 1981. Red Rim was scheduled for sale in October - November, 1981, and was found acceptable pending further study. The final EIS was published in August, 1980.

In September, 1980, the regional coal team recommended an additional alternative combination of tracts based on the final EIS. A 406-million ton target was recommended. Red Rim was continued in the category of "acceptable for leasing pending further study". A final decision on Red Rim was deferred until July, 1981, to allow acquisition of additional data concerning

the critical nature of the antelope habitat over a ten month period. If the data indicated Red Rim was acceptable for leasing, it was anticipated that it would be offered for leasing in October and its production potential of two million tons per year would provide for over half of the projected shortfall in national needs.

Based on the recommendations of the regional coal team, a "Secretarial Issue Document" was released in October, 1980, setting forth matters considered by the Secretary of the Interior prior to his October 20, 1980, decision on the coal leasing program. Red Rim was continued in the "acceptable for leasing pending further study" category in this document.

The effect of mining on the Red Rim lands is not a novel question. As early as July, 1976, Energy Development Company furnished preliminary data in its "Federal Coal Lease Application" relative to wildlife and reclamation considerations. Rocky Mountain Energy, a subsidiary of Union Pacific, which asserts to own the coal underlying the private sections, has made several in-depth studies on the environmental concerns related to surface mining. Detailed reports on these studies have been prepared and were made available to the BLM before it reached its decision to recommend leasing.

In 1980, Larry L. Irwin, Assistant Professor at the University of Wyoming, together with two graduate students, undertook an in-depth study of the antelope use of the Red Rim area. This report was at the directive of the BLM, the Wyoming Game and Fish Department and Rocky Mountain Energy Company.

After Professor Irwin's report was published in June, 1981, there were a series of meetings held to review the antelope situation. Governor Ed Herschler, whose office has been closely involved in the entire process, concluded in July, 1981, that the Red Rim tract could be declared as suitable for mining. In the Governor's letter to the Wyoming State Director of the BLM he stated:

> I have had the opportunity to review the data you have supplied concerning the "suitable pending" status of the Red Rim Tract. Based upon that review, I feel that the Red Rim Tract could be declared as suitable for mining as outlined in 43 CFR 3461, et. seq.

The letter then goes on to recommend certain mitigation measures. The Governor speaks for the State of Wyoming and his letter sets forth the position of the State, which position, to my knowledge, has not changed. That is, the Governor, speaking on behalf of Wyoming, favors mining coal in Red Rim.

Finally, in October, 1981, more than two years after the process started, the Wyoming State Director of the BLM transmitted his acceptability of Red Rim for leasing. In doing so, and in a further effort to protect the antelope, he recommended precluding development of approximately 1,300 acres lands. In reaching his final decision, his letter states:

> After very careful consideration, which has taken into account the results of significant research efforts in the area, industry and landowners' concerns, and direct consultation with the Governor of Wyoming, I have reached a final recommendation. My recommendation will allow the development of the Red Rim tracts while minimizing to the extent practical, serious potential impacts to wildlife habitat in the area, most notable, the crucial Baggs antelope herd winter range. My recommendation is to protect by stipulation a small but important portion of the crucial antelope winter range.

> Mining of the coal resources will not be affected by this recommendation. While minimizing coal conflicts, the recommendation will also protect a portion of critical habitat for a number of wildlife species including sage grouse, raptors, mule deer and permit seasonable movement patterns to be maintained. This recommendation fully recognizes that energy-related resource can be developed while maintaining the integrity of the multiple resource management.
>
> Coal development to meet national energy simply does not have to be realized at the expense of critical wildlife habitat. This decision permits full development of the coal resource, while protecting a minimal portion of the critical habitat for wintering species of wildlife in the Red Rim area.

These things are mentioned so the council clearly understands and appreciates what has already taken place. The issues raised by the Wildlife Federation are not new or novel. I have been attending meetings since 1979, and I have not heard or read anything in these proceedings that is new or that has not already been considered.

Through each step of this process there have been those who have advocated delay - delay for further studies. There have been those who have advocated the position that the best decision would be to make no decision and to have yet another study.

However, Red Rim has been thoroughly studied. In fact, to say that Red Rim, the mining of coal, and the environmental considerations, have been "thoroughly studied" is an understatement.

The results of these numerous studies have always lead to the conclusion that mining should be permitted. The BLM reached this conclusion; the State of Wyoming, speaking throught its governor has reached this conclusion.

Under the existing laws, those opposed to coal development are given three bites at the apple: 1) the original BLM procedure and EIS; 2) this process - unsuitability; 3) mine permitting process.

Many of the issues discussed or raised by these proceedings are more appropriately addressed under the mine permitting process when there is a site specific plan presented and actual impact will be known and specific mitigation measures discussed.

Our position on the effect of surface mining at Red Rim is elaborated in our Petition In Intervention but in summary our position is:

> The 'natural system' involving, the regional pronghorn antelope herd, would not sustain significant damage due to the following reasons: (1) surface mining of the Red Rim tract will not cause long-term damage to the herd; (2) only a small portion of the Baggs herd would be affected by the mining and this herd will ultimately re-establish itself from the remaining Baggs herd; (3) only a small acreage of the total winter habitat will be disturbed; (4) not all of the acreage will be disturbed at one time, i.e. there will be continuous mining and reclamation which will occur throughout the lifetime of the mine; (5) the effect on the pronghorn antelope can be controlled though the Wyoming Game and Fish Department's increasing and ultimately decreasing the legal harvest on the Baggs pronghorn antelope herd; and (6) the BLM, through its land use planning stipulations including the 'no surface occupancy stipulation' and the 'antelope mitigation stipulation', has mitigated any adverse effects on the pronghorn antelope

In addition, we have offered to relinquish grazing rights to help off set the claimed effect of mining. Mr. Lawrence's ranch contains 26,307 acres and composes 71% of the total Red Rim Logical Mining Unit. Mr. Lawrence has 1,316 cow animal unit months (AUM's). (A cattle AUM is the amount of feed needed to

maintain one cow for one month.) Figures supplied by the Wyoming Game and Fish Department state that it takes 10.8 antelope to consume as much feed as one cow; consequently, on Mr. Lawrence's ranch alone, there is enough feed for 14,213 head of antelope. (This number is computed by multiplying 1,316 cow AUM's by 10.8 head of antelope.)

A

The Wyoming Game and Fish Department places the average number of antelope winter usage at 1,700 head. Mr. Lawrence has offered to permanently protect the stated usage of 1,700 antelope by converting 158 of his cow AUM's to antelope AUM's, thereby, guaranteeing a home for the 1,700 antelope forever. Our Petition also addresses the issue of Reclamation, but in summary, our position is:

> (1) A Rocky Mountain Energy Company (RME) report ("Shrub Establishment for Reclamation of Wildlife Habitat on Mined Land in Southern Wyoming--An Overview") demonstrates that past and current research strongly supports the potential for successful establishment of shrubs on mined areas in the Red Rim; (2) the petition does not present any evidence to support the production costs; and (3) if it is truly economically infeasible to mine Red Rim and meet the reclamation requirements of the Federal and State governments, then the Red Rim tract will not be bid upon by mining companies at the lease site.

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Both the state and federal regulations require that the regulating authorities determine the impact which a designation of unsuitability would have on the economy prior to designating any land as unsuitable for surface coal mining operations.

The impact which mining of Red Rim would have upon the economy depends upon a multitude of factors including the cost of the initial construction, equipment installation cost, the

A Your proposal is infeasible, because there is very little dietary overlap between cattle and pronghorn. See responses to comment Nos. 100G and 111M. Also see comment No. 111Z.

employment numbers, the annual payroll and the effect upon local, state and national taxes, the unemployment rates, available housing and available municipal services. If the Red Rim tract is allowed to be placed for leasing and surface coal mining operations are constructed thereon, estimates indicate the initial construction cost for the mine would be $20,512,900. The initial equipment installation cost for the mine would be approximately $40,682,000. This expenditure of over $61,000,000 would have a significant impact on both the federal and local economies and would be an impetus to helping the local, state, and national economies recover from the current economic situation.

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Surface mining of the Red Rim tract would decrease the unemployment of Carbon County. During construction, the Red Rim mine would employ 50 to 60 individuals. Construction would last two years. Production would continue for a period of 25 to 30 years and would employ 175 individuals with an annual payroll of over $5,271,000. Local property taxes would be increased by approximately $92,000 annually. Carbon County's bonding capacity would increase $518,000. The severance tax would be $8,000,000 annually; Wyoming's share of the federal royalty tax would be $3,750,000 annually. These are "real world" figures.

The Red Rim tract has 58,341,000 tons of coal and contains recoverable reserves of 49,589,916 tons, for an approximate recovery ratio of 85%. Of the recoverable reserves, 35,842,012 tons are federal reserves.

Carbon County has experienced a dramatic economic decline during the last four years. All sectors of industry, business, construction, real estate, banking and professional services have declined while unemployment has soared.

Carbon County's unemployment statistics indicate that an influx of people would not be required in order to meet the staffing needs of the Red Rim tract. The county has steadily increased its unemployment rate from a low in January, 1981 of 3.1% to a high of 16% in April, 1983.

B The decline in the local economy can also be shown by a review of the building permits issued by the City of Rawlins. Between the years of 1976 and 1978, the City of Rawlins maintained a constant pattern in the area of building permits showing only a minor amount of growth. In 1979, the City of Rawlins, according to their building permits, was engaged in substantial building activity. However, in recent years, the City of Rawlins has experienced a rapid decline in the number of building permits and the valuation of new construction, indicating the local building and contracting industries are experiencing a severe depression.

Rawlins would, of course, experience most of the growth and economic benefits to be realized as the result of any development of Red Rim coal. The projections, developed in drafting the EIS indicate leasing would generate 411 jobs with an income of approximately $5.8 million. These jobs would have been fully realized by 1987 had the project stayed on course. This would have meant a need for an additional 188 housing units as well as

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B Thank you for your comment. Section IVD discusses the revenues projected to be contributed by the mining of the petition area to local, State, and Federal governments; it also discusses the current economy of Rawlins, which is depressed owing primarily to the decrease in energy-resources production.

potentially millions of dollars in tax revenues on the local, state and federal levels.

The decline in general economic activity in the City of Rawlins can also be discerned from a review of its subdivision activity. In 1978, the City processed five subdivisions; in 1979 the City processed six subdivisions; in 1980 and 1981 four subdivisions were processed by the City. However, in 1982, the City of Rawlins processed only two subdivision applications; one was the application of the school district which contained five residential lots and the other, a small business planned unit development.

The City of Rawlins could easily accomodate the increase in housing demands caused by surface mining of the Red Rim tract. The City of Rawlins has approximately 190 fully developed vacant residential lots which have all off-site improvements already installed. (Off-site improvements would include sewer and water lateral and mains, curb, gutter, sidewalk and street and drainage improvements.) There is an additional 90 platted townhouse lots with the construction of the off-site improvements scheduled within the next year. These developed subdivision lots could accommodate a population increase within the City of 500 to 600 people. In addition to the 280 subdivision lots, the City of Rawlins currently has over 200 single family homes for sale. These homes could accommodate another 560 plus people. Rawlins in also experiencing a 20% plus vacancy rate in apartments which would accomodate a population of 1,120. In addition there are 28 approved residential and commercial subdivisions in the

unincorporated areas of Carbon County. These subdivisions contain 120 improved fully developed lots and 180 undeveloped lots.

Due to the population projections in the Hams Fork study for the City of Rawlins, the city government has planned and/or made millions of dollars worth of capital improvements to the water and sewer system. In 1977, the City of Rawlins constructed a 20-inch transmission line from the Peaking Reservoir, located south of the city, to Rawlins. In 1977, the City added a looping system to the water system which connected the new area of town (Highland Hills) with the old area of town, thereby stabilizing the water pressure and providing adequate fire pressure to the new development. In the same year, Rawlins constructed a three million gallon storage tank located north of the city, also near the area of new development.

The City has also increased its water storage capacity by the construction of Atlantic Rim Reservoir, a 210 million gallon reservoir. Rawlins has constructed a water treatment plant and completed construction of its sewerage treatment plant as well as major sewer interceptor lines.

The mining of Red Rim coal does not necessitate a decision between the two extremes of people or antelope. The studies clearly indicate jobs produced as a result of mining Red Rim coal can be accomplished with little or no permanent impact to the ecological system. Responsible mining companies recognize the need to address environmental and wildlife concerns when considering any potential mining venture; however, there must, of necessity, be "trade-offs" in which the environmental-wildlife

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concerns are weighed against human considerations and the economic reality of "putting food on the table".

My client has a large economic investment at stake and must, as a businessman, utilize his investment to assure its maximum economic return. Given a choice, he would rather ranch coal than cattle - economic realities dictate that. Given no choice but to ranch cattle, he must, of necessity, utilize the Daley Ranch and Red Rim in such a way that it returns its maximum economic benefit to him. This would, however, be unfortunate for all involved - for Mr. Lawrence, the environmental community, the state and the local community would all be the losers.

ARNOLD D. CUNNINGHAM Testimony

To: Wyoming Department of Environmental Quality Council
Re: Red Rim Coal Development
Carbon County, Wyoming
January 23-24, 1985

Mr. Crow, Council Members

Background

My name is Arnold D. Cunningham.

I am a consulting geologist from Denver, Colorado.

I am a former resident of the State of Wyoming having resided in Laramie for 34 years.

I am a 1958 graduate of the University of Wyoming with a Bachelor of Science Degree - Professional Curriculum in Geology.

I am also a Professional Certified Geologist in the American Institute of Professional Geologists and a Certified Petroleum Geologist in the American Association of Petroleum Geologists. I am a member of the Wyoming Geological Association, the Rocky Mountain Association of Geologists, the American Institute of Mining, Metallurgical and Petroleum Engineering and a member of a number of Rocky Mountain state geological associations.

I have 26 years of professional experience in the total energy field consisting of oil and gas, coal, uranium and deep industrial water. A considerable amount of this time has been spent in the general Rocky Mountain region and Wyoming, in particular. I have extensive professional coal experience in the Hanna and Carbon Basin areas as well as Red Rim and the Powder River Basin all in Wyoming.

I have conducted consulting projects throughout the Rocky Mountain region, eastern United States, Canada, Africa, Carribean, Central America and the Middle East.

I have appeared or testified before the United States Geological Survey; Bureau of Land Management; Wyoming Siting Council; Regional Coal Team; Wyoming Oil and Gas Commission as well as in litigation matters as an expert witness.
(I might add that I am also an outdoorsman and hunter and very familiar with the state and the Red Rim area in which I have hunted antelope.)

Introduction

My involvment at Red Rim began in 1974. At that time, I was a consultant for Energy Development Co. (EDCO), Iowa Public Service, conducting reconnaissance work of various areas for possible development to replace the depleting Energy Development Co. reserves in the Hanna area. As a result of this reconnaissance work, I brought their attention to the Red Rim area which ultimately led to the Rocky Mountain Energy-EDCO joint venture.

Also since 1974 and to present, I have represented Mr. Lawrence in various projects. Subsequent to Mr. Lawrence's purchase of Daley Ranch in 1974, I have advised him on various matters as the surface owner with respect to development of minerals (oil and gas exploration-uranium and coal) within and underlying his ranch.

In conjunction with these activities, we have collected extensive files and invested considerable time, effort and money in order to coordinate potential mineral development with Mr. Lawrence's substantial surface ownership and ranching operations.

It is an acknowledged fact that surface ownership, cooperation and participation are essential to any mineral development, and for that matter, land use and game management. In the case of mineral development, this becomes an added value to the property right which necessarily factors into the land owner's operation as an businessman. Accordingly, my client certainly favors multiple land use at Red Rim which will allow for mineral development.

In considering preparation for this appearance, I weighed the best approach which, I hope, would present Mr. Lawrence's view and not reiterate all of the volumes of factual data available and previously distributed or discussed.

My conclusion was to present an overview perspective. This conclusion was also based on observations which I made while conducting a recent field trip to the Red Rim area on January 2, 1985 with Mr. Lawrence, Wildlife Federation officials and their consultants, Wyoming Game and Fish officials and representitives from Rocky Mountain Energy.

I only wish we were sitting at one of several vantange points at Red Rim in order that I could better attempt to make the following observations and points. It is difficult to get a true perspective of the vastness of the area from the pictures, charts and maps available and presented.

Brief History

The Red Rim coal reserves are in the last large undeveloped area of coal reserves in southern Wyoming. As previous testimony has indicated, they are valuable reserves and are enhanced by their proximity to the Union Pacific

Railroad. Had the diesel engine not replaced the coal steam-fired locomotive in the early 1950's, these reserves may have been developed earlier by the railroad as a source of fuel for the locomotives.

Exploration History at Red Rim

Rocky Mountain Energy (RME), a subsidiary of Union Pacific Railroad was aware of coal reserves of unknown magnitude. These reserves were the subject of an inventory drilling program conducted along with other drilling in relation to Union Pacific Railroad land grant minerals across the State of Wyoming.

1974-1976

My reconnaissance on behalf of Energy Development Co. lead to negotiations between Energy Development Co. and Rocky Mountain Energy resulting in a joint venture.

1977-1978

Extensive cooperative drilling on Rocky Mountain Energy and federal lands was conducted. Energy Development Co. was operator and this exploration resulted in various reports by their consultant, D.H. Emling, of Denver, Colorado.

1979-Present

Various submittals to agencies, impact statements, scoping studies and other delay due to the coal moratorium in the federal leasing program, et cetera. This period of history covered by Mr. MacPherson.

Development

Development of coal reserves are subject to many factors and the intertwining of all. These factors are:

(1) Time - This is a critical factor which enters all aspects and relates directly to them.

(2) Planning - Planning applies to both management long range planning as applied to budgeting and to actual planning of reserve development. The time factor can vary and be of a magnitude of 5, 10 or more years.

(3) Permit Process - The permit process is an expensive, complicated and timely process. Many of the component parts of permitting are tied to studies which are "time critical." In addition, a market must be developed in a before and after relationship.

I believe the Rocky Mountain Energy presentation will adequately cover the technical aspects of the permit and mine plan process and restoration studies that they have conducted. I do not wish to attempt to repeat this technical presentation. We all work with the same baseline data - geologic, engineering and environmental.

Using this data, interpretation and resultant opinions differ. The permit process is designed to work these differences out.

Introduction of Exhibits

(Note: Reduced scale versions of these exhibits will accompany my transcript with the Wyoming DEQ copy only.)

Now, lets look at an overview of a lot of the previous testimony. To do this I will use the aid of 3 exhibits. These exhibits are:

Exhibit Number 1 - Surface Ownership Map

This map was constructed from USGS topographic maps at a scale of 1 inch = 2,000 feet showing: (Attached reduction is 1 inch = 1 mile)

(a) M.T. Lawrence, Jr. Daley Ranch holdings as well as other surface ownership.

(b) Red Rim LMU outline (Logical Mining Unit designated by USGS/BLM)

(c) General and topographic features:
Railroad
Interstate 80
Red Rim and adjacent topographic low lands
Separation Creek and associated topographic flat
Mineral Development limit designated west of Red Rim crest

Exhibit Number 2 - Overlay

This is an overlay of the Irwin Antelope Study area taken from the "Red Rim, Wyoming Petition Evaluation Document/Environmental Impact Statement-Draft". It is comprised of Table IV-3, page IV-18 and Figure IV-1, page IV-19. This overlay shows the study area boundary divided into four sub-regions. The table further designates the acreages included in each of the sub-regions and the average percentage of pronghorn population residing within each sub-region.

Exhibit Number 3 - "A Mine Plan"

This overlay represents "A Mine Plan". It was designed as a result of the Emling Study for submittal as a preliminary plan and represents a worst case scenario as far as disturbed area resulting from mining operations. However, the shaded areas represent the location of coal reserves which will be defined as to parameter in a minute, and are

unlike antelope and remain in place. In other words, any surface mining operation will be conducted on or within the shaded areas since this is where the recoverable surface coal reserves are located.

With all 3 exhibits in place, let us consider one other factor to obtain a total perspective. (Note: my discussion will be in "round numbers" as substantiated in numerous documentation.)

The location of the coal is not easily recognized on the ground. It is sometimes difficult for a geologist to recognize the outcrops and they do not readily trace throughout the area to an unobserved eye. This is the reason that drilling must be conducted to delineate reserves and sometimes the results of drilling can surprise previous projection. However, the coal is where it is as now defined by drilling. Additional drill holes or different parameters could slightly modify this interpretation.

There are 12 recognized seams in the Red Rim area. Of these 12 seams, there are 5 or 6 seams which average 5 foot thick to 25 foot thick which represent the potential strip mine recoverable reserves. These seams are the object of the projected Emling strip reserves.

These seams represent between 60 to 70 million tons of recoverable strip coal reserves at a 10:1 ratio using a 20 foot low wall and 150 foot highwall. This ratio means that 10 cubic yards of overburden must be removed to extract 1 ton of coal before dilution for coal recovery. The average ratio represented in the Emling study is approximately 5.7:1.

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The Red Rim Logical Mining Unit contains approximately 20,000 acres and the Antelope Study area shown on the overlay represents approximately 20,000 acres. The antelope area does not cover the entire LMU area as noted at the north and south ends of the LMU.

Size Perspective

The blue lines on the mine plan overlay represent an 8,000 foot long typical line of cross section from the Emling report and a 750 foot long distance across a designated strip pit.

What does a million tons of coal represent?

Using a 25 foot seam and density of 1,770 tons/acre foot equates to an area of 22.68 acres. Assuming a ninty percent (90%) recoverable strip reserve, let's increase this acreage to an even 25 acres. In other words, a 25 foot thick seam underlying 25 acres represents 1 million tons of recoverable strip coal at a ninety percent (90%) recovery. Twenty-five acres is represented by approximately one-half the size of one of the blocks representing acreage ownership in the legend on the Surface Ownership Map (Exhibit 1). Most of the mine plan

studies for Red Rim have been designed for production of 1 or 2 million tons per year.

In addition, there will be disturbed area relating to haulage roads, settling ponds, surface facilities, et cetera. This will be designed in final form by the mining engineers in a submitted mine plan. These disturbed areas will be kept at a minimum to accomplish the permit process as well as for economic reasons in the overall development of the mine. Because of these two important factors, the mining engineers will strive to keep the disturbed area to a minimum both annually and cumulatively.

The 25 acre/million ton reserve area for a 25 foot seam would be proportionate and would increase to approximately 125 acres for a 5 foot seam. The Emling Study estimated that the total area included in the designated pit areas of Exhibit 3 was approximately 3,500 acres (actually 3,436 acres).

Let us assume an additional 3,000 to 3,500 disturbed acres for mine development purposes and we arrive at a total of approximately 7,000 total disturbed acres or one-third of the 20,000 LMU acreage or approximately thirty-five percent (35%). It is pointed out that this acreage would not represent a total amount of disturbed acreage at any given time but the total over the entire life of the project which at 2 million tons per year would be approximately 30 years.

360 C

The Iowa Public Service operation at Hanna averaged production and shipment of approximately 1 million tons a year and, in my opinion, the nature of these reserves are best suited to a development of the 1 to 2 million ton per year production range. However, a detailed mine plan would spell this out and would be directly tied to a market. It is quite possible that several operations of this magnitude could be conducted simultaneously in the general area which would shorten the span of the mining operations to approximately 15 years.

It is further estimated that the total disturbed acreage from actual mining pit operations to include reclamation areas would not exceed 320 acres at any one time. In addition, there would be disturbed acreage related to roads, ponds and surface facilities which, would also be subject to reclamation in certain instances prior to depletion of the Red Rim Coal reserve and the completion of mining operations. Rocky Mountain Energy has estimated that there would not be more than 3,000 disturbed total acres in the Red Rim project at any given time.

Overview Perspective

In comparing the super-imposed overlays over the Surface Ownership Map, I would like to point out the following:

The location of coal reserves as defined. Regardless of the type of mine plan program ultimately submitted, this is the location of the coal

See section IVA and table IV-1 for OSM's estimates of mine disturbance and of the maximum amount of unreclaimed mined land that would result from mining according to the D. H. Emling preliminary mining plan. Your estimates of the amount of disturbed acreage is considerably lower than both OSM's and RME's estimates. See response to comment No. 111B.

C

It is conceivable that the area could be mined at a faster (i.e., a higher yearly production) rate so that the duration of the impacts to pronghorn would be shorter. However, in this case, the impacts to pronghorn during that shorter period would be greater. See response to comment No. 111AK.

reserves in relationship to the surface acreage, LMU and Antelope Study area. Specific reference is made to the location of the reserves as they relate to:

(a) The higher topographic feature known as Red Rim

(b) The flatter topographic area immediately west of Red Rim in which most of the coal reserves are located

(c) Most reserves in an areas of lessor antelope population based on the Irwin study.

(d) The bulk of reserves are east of the Separation Creek and all are west of the defined limit of mining along the western edge of Red Rim as shown on the overlay

In weighing all of the various factors, it is pointed out that the development of surface strip mine reserves at the Red Rim LMU are limited in aerial extent when compared to the overall aerial extent of the Red Rim designated LMU and the Antelope Study area. Weighing all factors, attention should be scoped down to consider the various interrelated problems of antelope habitat area, vegetation, et cetera, to the actual location of the reserve, topography and related disturbed areas to mine said reserves. A simple comparison of the 3 exhibits clearly illustrates that the reserves (approximately 3,500 acres) encompass approximately one-sixth of the LMU and less than one-sixth of the Antelope Study area. Assuming 7,000 acres of total disturbed area in the course of mining the 60 to 70 million tons of the strip reserves would equate to approximately one-third of the LMU area and a lessor amount of the Antelope Study area. In any case, the location of the potential reserve areas and development as depicted in the Emling "worse case scenario" certainly do not cover seventy-five percent (75%) of the entire Red Rim area.

In all of my field experience, I have observed that the antelope is a very adaptable animal. In fact, precautions must be taken in conjunction with exploration and exploitation operations to prevent them from eating sacks of drilling mud and lost circulation material or chasing them out of pits in advance of blasting. One only has to visit the numerous mining operations present throughout the State of Wyoming to make the observation that the antelope are present and compatable.



Questions

From the Council

February 7, 1985

Wyoming Environmental Quality Council
401 W. 19th Street
Cheyenne, WY 82002

U.S. Department of Interior
Western Technical Center
Second Floor, Brooks Tower
1020 15th Street
Denver, CO 80202

RE: IN THE MATTER OF DESIGNATION OF 20,480 ACRE TRACT KNOWN AS "RED RIM" AS UNSUITABLE FOR SURFACE COAL MINING OPERATIONS

Dear Council Members:

There are approximately 34,012 acres in my ranch and that of my neighbors that make the Red Rim Logical Mining Unit. Wyoming Game and Fish personnel have told me that the minimum amount of antelope usage in the Red Rim area, in the winter, is 1,000 head; the maximum amount of usage is 2,400 head, and the average amount of usage is 1,700 head.

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My ranch, consisting of 26,307 acres, constitutes 71% of the total Red Rim Logical Mining Unit. There is allocated 1,316 cow animal unit months (AUM's). A cattle AUM is the amount of feed needed to maintain 1 cow for 1 month. Figures supplied by the Wyoming Game and Fish Department state that it takes 10.8 antelope to consume as much feed as 1 cow. As a consequence, there is enough feed on my ranch alone for 14,213 head of antelope. This number is arrived at by multiplying the 1,316 cow AUM's by 10.8 head of antelope.

Taking the average number of antelope winter usage of 1,700 head and converting this usage to cow AUM's, I have offered to permanently protect the stated usage of 1,700 head of antelope by converting 15% of the cow AUM's to antelope AUM's, thereby guaranteeing a home for 1,700 antelope forever.

This offer has been made to the National and Wyoming Wildlife Federations as part of a compromise settlement enabling the mining of coal in the north part of Red Rim and as part of a plan to ultimately mine the southern part after the reclamation has been proven in the north.

This requirement for a reclamation in the north is to prove reclamation to pre-mining antelope caring capacity or antelope AUM's. Consequently, if 35% of the total

D See response to comment No. 112A.

area was mined and no credit given for reclamation on the mined lands, that would still leave 8,133 AUM's available as a surplus for margin to meet the pre-mining antelope caring capacity. This would be in addition to the 1,700 antelope already provided for on a permanent basis.

This includes just my land and does not include the additional 29% or 7,705 acres of antelope caring capacity on my neighbor's lands included in the Red Rim Logical Mining Unit. As a part of this arrangement, I have offered to modify my fence to meet relevant Bureau of Land Management fencing standards, thereby accomodating the free passage of antelope. I have offered to do this despite the fact that such fence modification would thereby preclude me from developing my ranch to its maximum agricultural utilization.

Sincerely yours,

M. T. Lawrence

MTL/nrh

WYOMING BLM's
WRITTEN STATEMENT FOR THE RECORD ON THE DRAFT PED/EIS
FOR THE RED RIM UNSUITABILITY PETITION

My name is Mike Karbs and I am the Associate District Manager for the Rawlins District, Bureau of Land Management. The Bureau of Land Management has land and mineral resource management responsibilities for both surface and mineral resources on roughly half of the land in the proposed Red Rim Coal Tract.

We appreciate the opportunity to appear today and to comment on the "Red Rim Petition Evaluation Document and Draft Environmental Impact Statement." We would like to compliment the Wyoming Department of Environmental Quality and the Office of Surface Mining on developing a thorough and objective assessment of the petition to have certain lands within the Red Rim coal tract designated as unsuitable for surface coal mining operations.

The analysis contained within the draft Red Rim Petition Evaluation Document/Environmental Impact Statement (PED/EIS) supports our 1981 land use planning decision, which found the Red Rim coal tract acceptable for coal development under certain specific mitigation and stipulatory conditions.

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A

The Red Rim coal tract and Red Rim CAWR derive their names from the prominent topographic feature known as Red Rim, but they are not exactly the same area. The Red Rim CAWR is an oval shaped area of approximately 16,000 acres, which includes the rim itself and extends westward into the Separation Creek drainage area. A precise boundary for the Red Rim CAWR is difficult to define because there are no precise criteria to measure the extent of the range, which is strongly influenced by varying winter conditions. Red Rim is used as a critical winter range because it is usually free of snow during severe winter conditions. The snow free nature of the area is a result of the rim's southwest to northwest facing slopes and the strong, predominant winds from the southwest. The snow frequently blows off the rim and the lesser ridges west of the main rim.

BLM has management responsibilities for both land surface and mineral resources on roughly half of the land in the proposed Red Rim coal tract. The tract itself is an elongated area, which is parallel to Red Rim and located below the top of the rim and Separation Creek. The tract also extends north and south of the CAWR area.

A substantial number of antelope in the Baggs herd use a large critical winter range area, the Muddy Creek area, which is located south of the Red Rim CAWR. Muddy Creek CAWR makes up the majority (64,000 acres) of the critical winter range for the Baggs herd. Red Rim CAWR contains 16,000 acres. These two critical winter ranges are usually isolated from one another by a snow belt that the antelope cannot cross. Antelope continually migrate throughout the entire Baggs antelope herd unit area when the snow belt barrier is not there.

A

The Red Rim critical winter range becomes more important to pronghorn as winter weather increases in severity. Your statement that the boundary of the critical winter range varies with weather conditions is not correct. The pronghorn critical winter range is a fixed area designated by Wyoming GFD; its boundary is shown in figure II-1. See response to comment No. 6AY.

The number of antelope on the Red Rim CAWR during severe winter conditions depends on how many animals are in the north when the snow belt forms. Meteorological characteristics of each winter storm strongly influence the availability of the Red Rim CAWR and areas immediately adjacent to this range. Snowfall, wind speed and direction, temperature, and storm duration determine which parts of the Red Rim CAWR and areas immediately adjacent to the rim are available to antelope. In most years, areas adjacent to the windblown slopes on the CAWR are available and provide more forage than the windblown slopes. However, a severe winter storm may only leave the windblown slopes available for foraging. After the severe storm subsides, the animals are usually able to disperse into other foraging areas. When a winter storm limits antelope to the windblown slopes, the Red Rim CAWR provides "critical winter range."

If the Red Rim Coal Tract were ultimately leased and developed for coal production, it would likely be mined by surface methods, based on the configuration and location of the coal seams on the tract. Based on typical mining engineering practices in the area, the tract would be developed over 30-40 years. The peak mining disturbance is estimated to be 5,000-6,000 acres. Not all of the disturbed acres would be unavailable at one time. Reclamation during mine life would restore part of this acreage at least to partial antelope use, and the remaining 65 percent of the Red Rim CAWR would not be disturbed.

B

In line with our concern for a balanced approach to multiple resource use on the Red Rim coal tract, as well as throughout the total area used by the Baggs herd, we have identified stipulations that would be part of the federal coal lease for the tract. These stipulations would lessen any potential adverse impact to antelope and habitat by requiring a habitat recovery and replacement plan to be developed and implemented by the lessee in consultation with and subject to approval by BLM and the State of Wyoming. As a result of consultation with the Governor's office, no surface occupancy will be allowed on Red Rim itself. This area of no surface occupancy will be explicity defined in the lease for the Red Rim tract. It will protect the rim and provide for a migration corridor and an intact unit of critical winter range for antelope. Further, no mining activities will be allowed in the riparian zone ½ mile on either side of Separation Creek.

C

It is noted that the PED/EIS does not adequately consider the mitigating measures that BLM has established, if this tract is leased and developed. These measures are in the form of lease stipulations that would be included in the federal lease and known and committed post lease requirements under the authority of the State of Wyoming and Office of Surface Mining that would be imposed as part of mine plan approval and permitting. Appendix J of the PED/EIS contains the mitigation and stipulatory requirements identified specifically for federal lands in the proposed Red Rim tract. In addition, BLM's regional land use plan (Divide/Overland Coal Land Use Planning Decisions, May 1982) also provides explicit protection for the remaining critical winter range area used by the Baggs antelope herd. We emphasis the importance of all these provisions being BLM decisions and part of the decision that the Red Rim area is acceptable for coal development.

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See responses to comment Nos. 111B and 111AJ for OSM's estimate of the amount of mine disturbance that would occur and the amount of critical winter range that would be mined and affected.

B Based on the assumptions discussed in section IVA, a maximum of approximately 23 percent of the critical winter range (4,053 acres) would be unreclaimed at any one time. This reduction in the acreage of the critical winter range would significantly impact the capability of the Red Rim area to support a substantial portion of the Baggs Herd.

C See responses to comment Nos. 1A and 100B.

D See response to comment No. 1B.

In conclusion, mining the Red Rim coal tract would not cause significant long term adverse impacts to antelope. The petition allegations reflect legitimate concerns. We shared these concerns throughout our analyses, and we believe they have been adequately addressed throughout the planning process. BLM recognizes the critical winter range that overlaps the Red Rim coal tract and, we understand the importance of this critical winter range to antelope.

We believe that coal production can occur in the area and still reserve ample critical winter range for the Baggs antelope herd. Our findings are based on sound multiple use principles and we can find no reasonable justification for a formal unsuitability designation.

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

*Game and Fish Department*

CHEYENNE, WYOMING 82002

W. DONALD DEXTER
DIRECTOR

February 7, 1985

Mr. John Crow
Environmental Quality Council
Emerson Building, Room 304
2001 Capitol
Cheyenne, WY 82002

Dear Mr. Crow:

Attached are the Wyoming Game and Fish Department comments regarding the Wildlife Federation's petition to have the Red Rim Coal Tract designated unsuitable for coal mining. These written comments include Dr. Dale Strickland's comments presented on behalf of the Department at the January 24, 1985 hearing. We have appended materials which contain data that support the points presented in our oral presentation. In addition, we have responded to Mr. Langrand's request for mitigation/reclamation measures in existing mine permits. The staff of the Department of Environmental Quality was very helpful in compiling the latter information.

Finally, we have prepared a possible alternative to the Wildlife Federation's petition. This task was very difficult and was only undertaken because of our desire to protect as much critical habitat as possible. In that vein, it appears a proposal of compromise is in order to protect the state's wildlife resource.

I was very much concerned with the tone of your questioning toward the end of Dr. Strickland's comments at the hearing. It appeared that you felt the Federation's petition and our support of the petition was inappropriate. I was under the impression that Congress felt the petition process was appropriate since they provided for it in 30 USC 1277 (SMCRA). I certainly think our Department owes the citizens of this state its full participation in matters affecting wildlife. I think the petition process as well as the mine permitting process qualify for our participation.



I would like to thank you and other members of the Council for the opportunity to appear before you and present written comments. If I or anyone on my staff can be of further assistance, please let me know.

Sincerely,

W. Donald Dexter

W. Donald Dexter, Director
WYOMING GAME AND FISH DEPARTMENT

WDD:DS:rv
Enclosures

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Statement before Public Hearing on
Red Rim Unsuitability Petition
Rawlins, WY January 23-24, 1985
Dale Strickland

My name is Dale Strickland, and I am representing the Wyoming Game and Fish Department. I am the Assistant State Game Warden with the Wyoming Game and Fish Department in Cheyenne. I have a B.S. in Biology and an M.S. in Wildlife Management from the University of Tennessee, and a Ph.D. in Ecology from the University of Wyoming. I have worked with the Game and Fish Department for approximately 11 years as a Research Biologist, Staff Biologist, Supervisor of Biological Services, and my present position. My responsibilities extend over the entire state, and my staff and I have been intimately involved with pronghorn management and research in southcentral Wyoming.

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I have been involved with the Red Rim issue since 1977.

The controversy surrounding Red Rim hinges on two issues. First is the issue of critical winter range. Is Red Rim critical pronghorn winter range? The answer is "yes". The winter of 1983-84 documented what happens when critical winter range is unavailable as much of Red Rim was fenced to exclude pronghorn. From 64-67 percent of the pronghorn in the Baggs herd died last winter. A copy of the biologist's report for the Baggs herd unit is attached (Appendix 1). This was the highest mortality recorded for pronghorn in the entire state. Many would not have died had they been able

A

A Section IIA has been revised.

to reach Red Rim. In a similar winter, the winter of 1978-79, mortality was approximately 15% in the Baggs herd. Designation of Red Rim as critical pronghorn winter range is based on data collected by our Department, the Bureau of Land Management, and the University of Wyoming since 1977. These data indicate that approximately 700 pronghorn depend on Red Rim during the summer and from 1,000 to 1,500 depend on the winter range in normal winters. During severe winters antelope in the north end of the Baggs herd unit are forced to depend on Red Rim for survival. Nearly 3,000 antelope congregated on the Rim during the severe winter of 1978-1979. A similar number attempted to reach the Rim in the early winter of 1983-84. A strong positive correlation between weather severity and the number of pronghorn using the Red Rim winter range is evident throughout this period. Without Red Rim, the majority of these animals cannot survive, as we saw in 1983-84.

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B The second issue on which this controversy hinges is mitigation/reclamation. Is it possible to mitigate the loss of the Red Rim Critical Winter Range? The answer is "no". Off-site mitigation is impossible since Red Rim provides the only critical winter range for pronghorn in the northern portion of the Baggs Herd Unit. More pronghorn critical winter range exists southwest of Red Rim, along Muddy Creek and Wyoming Highway 789, but the two critical winter ranges are separate and isolated during the winter by deep snow. During most winters, the Muddy Creek winter range is unavailable to animals in the northern portion of the herd unit because migration to the south is blocked during extreme weather conditions. Data collected by the University of Wyoming on marked pronghorn substantiate this conclusion (See Appendix 2).

Fundamental to any reclamation effort at Red Rim would be reconstruction of the southwest facing uplift and the folded ridges and draws present on

B See responses to comment Nos. 100F and 111AC. See comment No. 100N.

C the southern and western portion of the area. Without restoration of these topographic features, the area would be of little value to pronghorns. Wind blowing across the features blows off the snow and makes vegetation available to pronghorn. Such micro-contouring is extremely expensive due to the cost of moving overburden and topsoil numerous times in order to recreate pre-mining topography. More important, soil stability may be seriously jeopardized by placement of relatively unconsolidated overburden and topsoil on steep grades. We know of nowhere in the United States where micro-contouring has been successful in an area with an environment such as Red Rim. We do not believe micro-contouring could be successful at Red Rim.

The success of reclamation of wildlife habitat on surface mined land in areas such as Red Rim is predicated on re-establishing vegetation. Extremely rapid revegetation would be necessary in many areas in order to stabilize soils on steep slopes. A significant problem associated with rapid revegetation of the Red Rim tract is the limited depth of topsoil. Further, in light of the limited nutrients available in topsoil of the area, and the 9-inch annual precipitation, we question the ability of this soil to support the rapid revegetation necessary. Any revegetation with shrubs may require irrigation, which further increases costs.

D Another significant problem is associated with restoring pronghorn winter range at Red Rim. Shrub densities must be restored on Red Rim, if it is to be reclaimed as pronghorn winter range. No literature on this subject supports a conclusion that shrubs could be re-established on Red Rim at pre-mining densities in less than 40 years. We believe that shrub re-establishment on Red Rim would be so expensive it would be infeasible, or would take so long it would be of little value in restoring critical

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C Regarding whether it would be necessary to restore the topography for the pronghorn, see responses to comment Nos. 2D and 100Q. OSM's estimates of costs to reclaim the topography so that it closely approaches its premining condition (reclamation scenario 1) are included in section IVC as is a discussion of mass- (landsliding) and erosional-stability problems under reclamation scenario 1. OSM concludes in this PED/EIS that reclaiming the topography of the petition area to closely approach its premining condition, as you and the petitioners allege must be done, would be more costly than would reclamation using standard reclamation practices; in addition, the certainty of its success would be less. This PED/EIS does not conclusively show that reclaiming the petition area to closely approach its premining condition would be technologically and economically infeasible.

D See response to comment No. 100E regarding the density at which shrubs should be replaced. See response to comment No. 100C regarding the time necessary to reestablish shrubs and carrying capacity on Red Rim. See response to comment No. 100V regarding both the cost of reestablishing shrubs and RME's comments to Wyoming DEQ on shrub reestablishment.

pronghorn winter range. Rocky Mountain Energy has indicated that restoration of one shrub per 9 square meters on a mine would be economically infeasible (see Appendix 3), yet reclaiming pronghorn habitat at Red Rim requires a much higher density of shrubs.

An additional problem which accompanies shrub re-establishment is browzing. Animals would have to be restricted from newly reclaimed areas until shrubs become established - estimates range from 12-25 years (PED/EIS, p.F-8). If livestock and pronghorn were not excluded from reclaimed areas at Red Rim, shrub re-establishment would be significantly retarded. However, if the area is fenced, it is unavailable as critical pronghorn winter range.

Our comments on the Draft PED/EIS have been submitted to the Wyoming Department of Environmental Quality. A copy of those comments is attached (Appendix 4). However, a number of points merit reiteration:

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The entire EIS is structured around the premise that the coal could and should be mined despite the mass of scientific data to the contrary.

E The area is critical pronghorn winter range, and Rocky Mountain Energy has many times insisted that they can restore the habitat or mitigate its loss. There is no information supporting the contention that it is economically, technologically and biologically feasible to reclaim Red Rim to critical winter range. If reclamation of the winter range is technologically feasible, costs would be so high that the mine would be economically infeasible. The decision appears to us to be obvious.

This document deals largely with wildlife and reclamation issues. At a hearing in Cheyenne in 1983, we were told by mining industry reclamation

E The uncertainties of and risks to the accomplishment of reclamation are described in the response to comment No. 2B and in appendix F. Also see response to comment No. 6BJ.

F experts that restoration of 1 shrub/$m^2$ (half the density on Red Rim) on only 10% of a mine permit area, in an area of 15+ inches of rainfall, was economically infeasible (Appendix 4). This document maintains that there will be no reclamation problem on Red Rim; an area with 9 inches of rainfall. Obviously, some discrepancy exists.

F See response to comment No. 100V.

G There are no data presented in the EIS to substantiate its claims that antelope losses will be slight or that reclamation will occur in 10-12 years. The winter of 1983-84, when winter range was not available to pronghorn, indicates that losses will be spectacularly large. It very poorly assesses the ideas in the unsuitability petition, and fails to justify denying the petition.

G The PED/EIS does not specifically predict pronghorn mortality should Red Rim be mined, because mortality would be determined by many unpredictable variables. However, the PED/EIS repeatedly indicates that the impacts of mining on the pronghorn using Red Rim and on the Baggs Herd in general would be significant.

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H The document repeatedly mentions the number of pronghorn in the Baggs herd, and the fact that the herd exceeds its population objective. Pronghorn populations fluctuate depending on management and natural events. The Baggs herd is presently under objective, (Appendix 1) though it was over objective at the time the document was written. That does not justify destroying a significant portion of a large pronghorn herd in Wyoming. We were committed to reducing the Baggs antelope herd to objective level by 1985, and the winter of 1983-84 reduced the herd well below objective. This whole discussion is simply a distraction from the real issues. Those are: Is this critical winter range for antelope? Can its loss be mitigated? Can the critical winter range be restored?

H To take account of pronghorn mortality during the winter of 1983-84, the text has been revised.

Wyoming contains 75 percent of the world's remaining pronghorn and loss of the pronghorn on Red Rim and their offspring for the foreseeable future, is significant to the region, state and even nation. The pronghorn are

valuable to hunters as a game species and to the state as a renewable resource that generates significant income. Perhaps the pronghorn's greatest value is to those people who have never seen one but hope to some day and are gratified to know that Wyoming has been wise in its conservation of the species.

When the U.S. Congress passed the Surface Mine Control and Reclamation Act, they anticipated just such a situation as Red Rim. Thus, in Section 522(a.3.A) they instructed the Secretary of Interior to consider state resources when leasing coal. The Secretary, in adopting unsuitability criteria (Appendix 5), recognized state wildlife as a significant resource that should be protected from mining if impacts were not mitigable.

The position of the Wyoming Game and Fish Department on Red Rim has remained unchanged since 1978. The Red Rim area is a critical pronghorn winter range. The Department is not opposed to mining in general. Since 1976 we have demonstrated our ability to accommodate mining and still maintain wildlife. There have been thousands of acres of coal leased and over 70 mines permitted in Wyoming since 1975, and we have objected to only one - Red Rim. We have always been opposed to surface mining on critical big game winter range unless reclamation and adequate mitigation can be demonstrated. Again, we do not believe such mitigation and reclamation is possible on Red Rim. We are therefore still opposed to mining of the Red Rim coal tract.

If pronghorn are ever to make a difference when making coal decisions, Red Rim is the place where they should. Federal law and regulations support an unsuitable designation for Red Rim. We believe it is in the best interest of the people of Wyoming and of the entire Nation that Red Rim be declared unsuitable for coal mining.

The above represents the statement presented at Rawlins, Wyoming on January 24, 1985.

Evaluation Mitigation Reclamation Measures at Existing Mines

At the Red Rim hearing of January 23-24, the Environmental Quality Council asked the Department to examine wildlife mitigation and reclamation practices at various mines in Wyoming to see which measures might be appropriate at Red Rim. We have examined those measures, and a table illustrating them is attached as Appendix 6. All of those measures which are pertinent to Red Rim (reestablishing microtopography, direct application of live topsoil, restoration of premining shrub density, preservation of vegetation islands by exclusion, protection of important habitat by exclusion) have economic/technological/legal constraints which limit the effectivenes of the measures and/or the degree to which they may be employed. There is no mine in the state which has used any of these measures very much, and certainly not to the degree or as successfully as would be required on Red Rim. As a matter of fact, in permit negotiations, most of these measures have been resisted by comranies as being unreasonable because of technological constraints or poor economics.

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The Department also attempted to examine truck-shovel mining operations to get some idea of the amount of surface acreage required for such a mine. In doing so, we found that truck-shovel mines are not common in southern Wyoming because of the thin, deeply-dipping coal seams and thick overburden, thus marginal economics. One coal mine proposed to be a truck-shovel operation is South Haystack. A comparison of data from the South Haystack mine plan with Red Rim data from the PED/EIS is presented below.

We agree with your assessment that it has never been necessary for any single coal mining operation in Wyoming to incorporate all the reclamation measures you cite in its mining and reclamation plan. Most of the measures you mention have been incorporated into mining and reclamation scenario 1, which is analyzed in the PED/EIS. If the Red Rim area is not designated as unsuitable for mining, the Federal leasing authority (BLM) or the State permitting authority (Wyoming DEQ) could require incorporation of these or other techniques to mitigate loss of critical winter range.

| | Red Rim | South Haystack |
|---|---|---|
| Recoverable Reserves | 59,987,028 tons under 3,461 surface acres = 17,332 tons/acre | 65,865,000 tons under 1,109 surface acres = 59,391 tons/acre |
| Stripping Ratio | 10:1 (max.) | 6.4:1 |
| Coal BTU/LB | 8,560 | 9,707 |
| Total Disturbance | 11,000 acres | 2,403 acres |
| Sagebrush Density | 0.9/$m^2$ | 0.3/$m^2$ |
| Reclamation Costs | $48,000/acre (Scenario 1) | $55,000/acre |

One thing obvious from this comparison is that poor estimates for reclamation were used in the PED/EIS. Although South Haystack has similar overburden depth and less shrubs to restore, costs there are estimated to be higher than those to restore all shrubs at Red Rim. This is impossible. Moreover, costs of filling pits are much higher at South Haystack than at Red Rim, even though stripping ratios are much higher at Red Rim. This also is unlikely. Finally, the BTU content of Red Rim coal is comparable to that in the Powder River Basin. It contains 1,000 BTU less per pound than coal being produced at other mines in southern Wyoming. It's hard to believe this coal will be either competitive or profitable, given the questions raised above about costs of a comparable mine with less stringent reclamation requirements and thicker, better quality coal.

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Possible Alternative to Total Unsuitability

In response to a question at the hearing regarding the possibility of mining, I was asked if I could imagine any way that a portion of Red Rim could be mined and still take care of antelope. I responded that if mining

Section IVC has been revised to include higher reclamation cost estimates for Red Rim. No valid comparison can be made between reclamation costs for the proposed South Haystack mine and those for Red Rim. The South Haystack operation would consist of one very large, deep (800 feet) pit and five separate smaller, shallower pits. An operation on Red Rim would consist of several long, relatively shallow (150-foot maximum depth) pits. The South Haystack initial 5-year permit application estimates reclamation costs for the 1,249 acres that would be disturbed during the permit term to be $69 million, or $55,000 per acre, which is the reclamation cost figure you cite. Note, however, that the greatest part of the money spent to reclaim the South Haystack mine ($63 million of the $69 million total) would be spent to backfill the one very large, 800-foot-deep pit. Because mining and reclamation operations would not be comparable at the two mines, a comparison of reclamation cost estimates for the two mine areas is not relevant. The comparatively high quality of South Haystack coal would make it economically possible for that operation to mine deeper and to handle a larger volume of overburden.

could occur in a mosaic, then it might be possible. I was then asked by Council Chairman Crow to propose a possible scheme using the mosaic approach.

First of all, let me point out that our knowledge of pronghorn needs is far from complete. We know where animals winter, what they feed on, what areas remain relatively snow free and how animals move from place to place. However, we don't know how all these things relate to each other in the mind of a pronghorn. Thus, we can make the best judgment possible and still lack a significant piece of information; that is, how the animal will respond.

The critical habitat line indicated on Figure 1 was drawn based on antelope observations accumulated several times during each winter and for all winters since 1977. When simply using pronghorn use data, the entire area appears critical. When combining annual use information with vegetation data and topography it may be possible to propose an area within the coal lease tract which could be mined while significantly reducing the impacts on pronghorn (Figure 1). In making this analysis, we have assumed that the only vegetation map available (Figure 2) was accurate, an assumption we are not very comfortable with. We are aware of some errors in this map but have used it as it is the only one available. We have also assumed that the vegetation type, greasewood, saltbush, grass, meadow and barren, are of limited value to pronghorn. This assumption is probably not true but these types are of less value than other shrub types occurring on the rim.

The south end of the critical habitat is so diverse and patchy that it was impossible to segregate the importance of areas. On the northwest and north ends there were blocks of less important types which allowed some differentiation.

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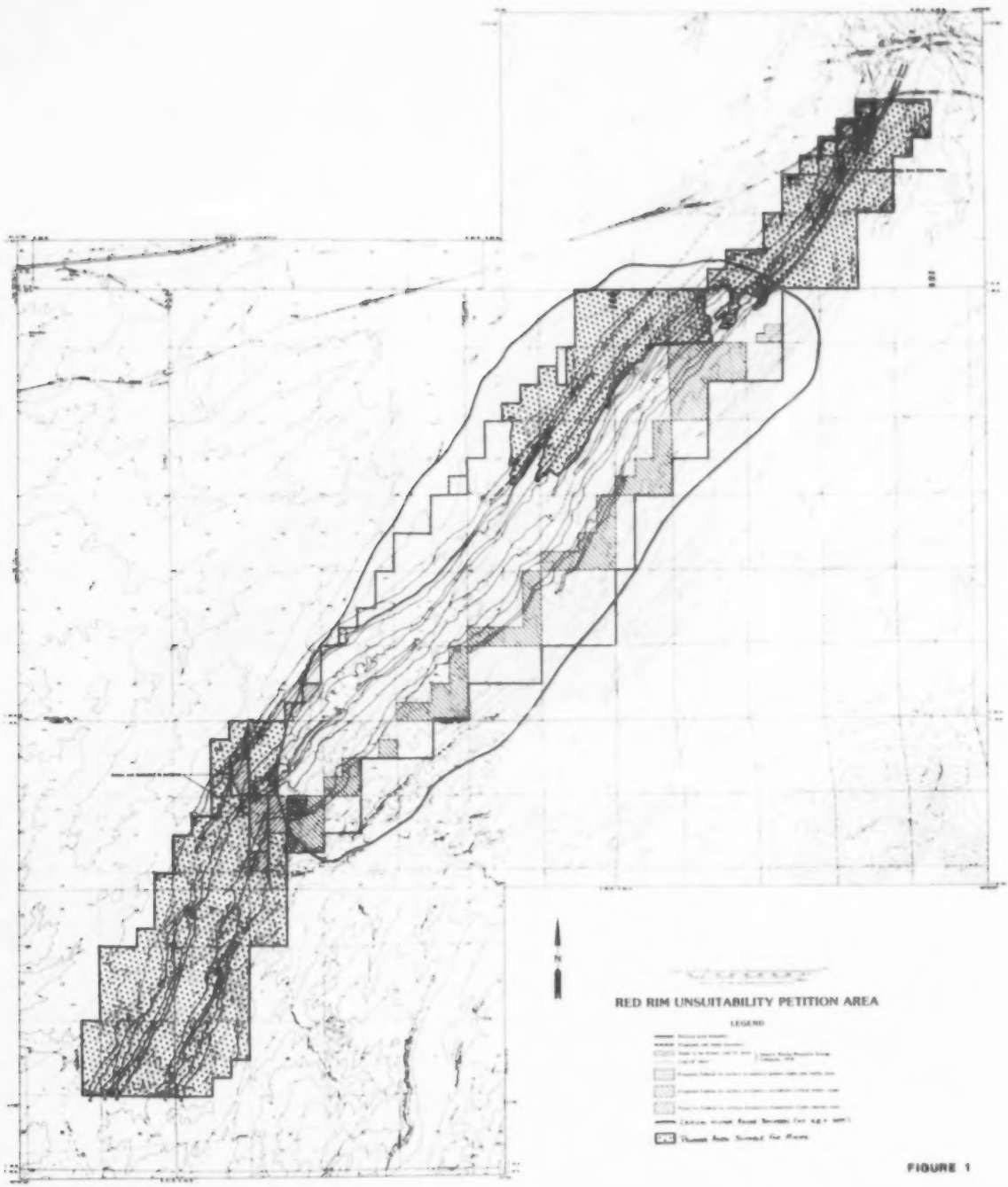
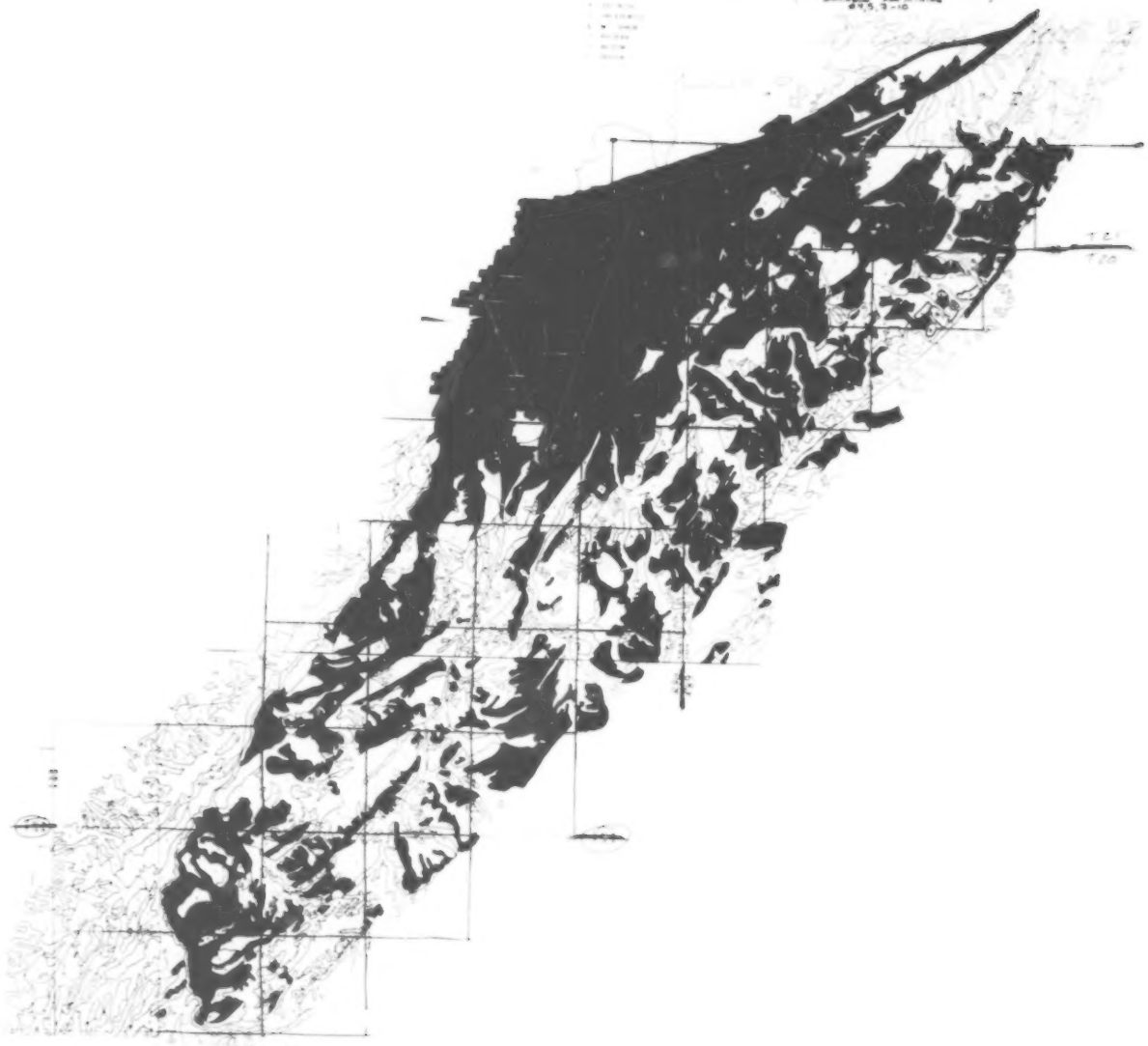



FIGURE 1

FIGURE 2. VEGETATION TYPES



Our proposal is as follows:

1. The area colored blue on Figure 1 be designated suitable for mining with the remainder designated as unsuitable;

2. All sagebrush types within this area and inside the critical habitat boundary be protected with a no surface occupancy stipulation unless it overlays a coal seam;

3. That the no surface occupancy area identified by the BLM be maintained, and that mitigation measures suggested in Governor Herschler's letter of July 27, 1981 to the BLM also apply;

4. That the forage lost through disturbance of any sagebrush types within critical habitat be mitigated by a change in grazing management on the Muddy Creek Winter Range in order to provide forage for other segments of this herd until mined portions of Red Rim are reclaimed;

5. That reclamation restore pre-mining shrub densities on sites when sagebrush types exist pre-mining.

According to the PED/EIS, there are 19,451.5 acres in the Red Rim coal tract. This proposal represents a designation of 12,087.4 acres of the tract as suitable for coal mining. It represents the loss of 7,364.1 acres of the tract for coal mining. It represents the loss of 2,291.2 acres of critical habitat.

K

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K Your proposal has been incorporated as an alternative decision into the PED/EIS. Accordingly, section C of the "Summary," section ID, and chapter V of the PED/EIS have been revised.

Appendix 1

Preliminary Winter Mortality and June Trend Estimates for the Baggs Antelope Herd Unit.

Because of the conflicts associated with Red Rim and the overpopulation in the Baggs DAU, it was decided to conduct winter mortality and June trend studies to analyze the effects of the winter of 1983-84. This report only covers mortality and trend. A discussion of distributions during the winter is available in the completion report for this herd.

Mortality Estimates

Based on flights conducted throughout the winter, the winter range was stratified into three types: low to moderate sagebrush height and low to moderate carcass density (Red Rim and some areas around the Dixon airport and south of Baggs), high sagebrush height and heavy carcass density (Muddy Creek) and juniper/sagebrush mix with heavy carcass density.

Following stratification, all of the known wintering areas were aerially censused along 1/4 mile transects to get mortality and population estimates for the different areas. After the flights were completed, count blocks were identified within the three stratified areas. Ground counts were completed so that total animals present and correction factors could be established for the aerial censuses. Three blocks were counted in the low to moderate sage type and one block was censused in the high sagebrush and juniper/sagebrush mix. Count blocks were approximately 2 miles x 1/4 mile.

Results

Muddy Creek and Baggs Area

Ground truthing in this area indicated that only 51% of the animals in the juniper/sagebrush mixed were counted from the air. In the low to moderate sagebrush, 73% were censused and in the high sagebrush type, 66% were counted. All three types are present in this portion of the winter range.

Actual counts and adjusted estimates are both presented below.

| | Actual Count | Adjusted Estimate |
|---|---|---|
| Muddy Creek Proper | 1,377 | 2,042 |
| South Baggs | 384 | 723 |
| South Dixon | 38 | 52 |
| North Baggs-Dixon Airport | 505 | 971 |
| TOTAL | 2,304 | 3,788 |

This data indicates that approximately 3,788 animals were winter killed in this portion of the herd unit.

Red Rim

In the winter of 1983-84, we made 13 complete or partial counts of Red Rim. This data is available in the 1983 completion report. Aerial transects were flown using the same techniques as on the Muddy Creek winter range. The entire area on and adjacent to Red Rim was classified as low to moderate sagebrush height and low to moderate carcass density. A 73% correction factor was used for the entire area.

The area aerially censused included the northern portion of Red Rim, the area just south of the UP tracks and north of the Taylor Lawrence fence, all of the area between the UP tracks and I-80 from Creston Junction to Rawlins, and Atlantic Rim.

Count Data by Area:

| | Actual Count | Adjusted Estimate |
|---|---|---|
| UP Tracks to I-80 | 832 | 1,140 |
| UP Tracts to ½ mile south | 104 | 142 |
| Red Rim to ½ mile south of UP tracks | 95 | 130 |
| Atlantic Rim | No mortality seen | |
| TOTAL | 1,031 | 1,412 |

Distribution data indicated that as the winter progressed, most of the antelope outside the fence moved north and concentrated along the UP tracks. Approximately 400 to 600 animals trapped outside the fence in the southeast corner of Red Rim moved east and wintered on Atlantic Rim.

Of the mortality estimates for Red Rim, 85% or 110 of the carcasses were outside the fence. Data indicates that very few antelope perished on the rim. Antelope that were forced north experienced high mortality. Initial estimates of the number of antelope using this area were 1,500 to 1,700. The mortality estimate for this area is approximately 1,140 animals (67% to 76%).

The primary reason for better antelope survival on Red Rim and Atlantic Rim is because these two areas were the only snow-free areas in the herd unit during portions of the winter.

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## Discussion

Mortality estimates indicate that approximately 5,200 antelope of those that wintered in the herd unit died in 1983-84. Some antelope emigrated from the unit during December and early January. Animals left the unit regions south and west from Baggs and east from Red Rim. Approximately 1,200 to 1,500 antelope left the unit this winter. If these animals are included in the mortality estimate, there are approximately 3,300 antelope left in the herd. Based on a 1983 post-hunt population estimate of 10,000 and accounting for immigration back into the herd unit, the overall reduction was around 67%.

It is clear that the fence on Red Rim altered distributions from those seen in the past 7 years in this area. During the severe winter of 1978-79, when antelope had access to Red Rim, little or no mortality was documented. Approximately 2,800 antelope used the rim that winter. Although weather patterns were different this winter, approximately 1,600 antelope were counted against the fence around Red Rim. All of these animals were forced to use winter ranges off the rim. We cannot estimate how many of these animals would have winter killed had the fence not been in place because of the high mortality in other portions of the herd unit. However, the data does indicate that a higher percentage of the animals that were forced off Red Rim died than those that wintered on the northern edge of the critical winter range on the rim. Only 20 animals were estimated to have winter killed on the rim while 1,282 died off the rim. The fence was a variable that prevented accurate mortality estimates based on normal antelope distributions on winter ranges. Overall, mortality would undoubtedly have been higher than normal this winter, but whether it would have approached the levels we saw is not known.

## Trend Count Data

An aerial trend count was conducted over the entire Baggs Herd Unit in June of 1984. We wanted to compare the population estimate from this technique and the mortality study. We waited until the second week of June to conduct the study to assure that all animals that were going to immigrate back into the unit had a chance to do so.

The entire unit was censused on ½ mile transects. North/south transects were flown and animals were counted looking west to take advantage of the angle of the sun at early morning. All censuses were started at dawn and stopped at 10 a.m.

During the trend count, 1,523 animals were censused in Area 55 and 1,564 were counted in Area 53. We estimated that we counted 85% of the animals present, which increases the population estimate to 3,631 adults.

If we assume 10,000 antelope were in the herd unit post-hunt 1983, there was a 64% reduction in numbers this winter.

Comparison of the two techniques indicates that [illegible] was a difference of 300 animals with the mortality estimate the higher estimate. There was only a 3% difference between techniques.

Trend data in the Daley Allotment indicates a decrease from 700 to 800 summering animals to around 200 this year.

## Summary

Mortality data indicates a 67% reduction while trend data shows a 64% decrease.

The herd population estimate for June, 1984 is 3,300 based on mortality data and 3,631 based on trend data.

Comparisons of the two techniques indicates that either could be used to estimate numbers but that we now have a technique for estimating mortality that will only require two or three man days to complete and should be accurate enough to set harvest quotas in a reasonable time.

## Appendix 2

### SIGNIFICANCE OF RESEARCH FINDINGS

Major findings of this study which may be of value in making decisions concerning the Red Rim area include:

1. Research Finding -- During winters of 1979-82, we observed 1,000 to 1,600 antelope occupied Red Rim. During a severe winter (1978-79), others estimated 2,400 to 2,800 antelope to be using Red Rim (Wyoming Game and Fish Department, 1981). In summers 1980 and 1981 approximately 700 pronghorn used Red Rim.

   Significance -- Based upon observed increases of pronghorn on Red Rim with increasing winter severity, we conclude the area is annually important for winter range. Even during 2 very mild winters pronghorn began arriving on Red Rim in October. Our observations and LANDSAT imagery indicate Red Rim is annually important because antelope find elevated and diverse topography which provides protection from convective energy losses due to high winds, yet the high winds also blow snow away from adjacent ridges and benches which make forage available.

2. Research Finding -- During the 2 winters intensively studied, 75% of the antelope on Red Rim were observed in draws and on benches and ridges near Separation Creek and near the crest of Red Rim. These areas comprise only 56% of the total land area, thus antelope preferred them. During 1979-80, a deep-snow year which was less intensively studied, pronghorn habitat use varied, but draws were still used, as was the greasewood flat along Separation Creek.

   Significance -- In the event of winter range disturbance due to coal mining, habitats adjacent to Separation Creek and along the crest of Red Rim should be restored. Topographical conditions should approximate the original contours. The topographic diversity provides an array of suitable habitats and ensures snow-free areas or at least minimizes the length of time antelope must paw through snow to find forage.

   Although certain potential wintering areas with similar topography are adjacent to Red Rim, they may be unavailable due to (apparently) scheduled mining (Cherokee, China Butte), or are too small and remain snow-covered much longer to be equally substituted for habitats on Red Rim for maintaining the current pronghorn population. Thus, off-site mitigation of habitat losses occurring on Red Rim currently appears ineffective if these sites are mined.

3. Research Finding -- Characteristics of preferred winter habitats on ridges and benches adjacent to the east edge of Red Rim and adjacent to Separation Creek included: northwest slopes averaging 40° (ranging from 25-55); and big sagebrush stands with average densities of 5 plants/10m$^2$ (range: 2-8) and average height of 25 cm (range: 10-40 cm). In draws and flats antelope used greasewood stands with densities averaging 4 plants/10m$^2$, mixed with big sagebrush averaging 37 cm tall and averaging 5 plants/10m$^2$.

   Significance -- If Red Rim is mined, reclamation practices should strive to re-establish shrubs in arrangements similar to those listed. We do not suggest a monoculture of sagebrush or

greasewood, and reclamation should include winterfat, rabbitbrushes, saltbushes and native grasses. Also, restoration of topographic diversity described above, is recommended. However, re-establishing vegetation on such steep slopes will likely be difficult in this region (Toy 1979, 1981).

4. Research Finding -- At least 22% of the antelope trapped and marked near or on Red Rim moved east in summe[illegible] crossed the Baggs-Iron Springs herd unit boundary. Most of the neck-banded animals that did so were discovered during relatively infrequent searches for radio-collared animals in areas outside the main study area. A few antelope even crossed the North Platte River, suggesting many of the 55 neck-banded animals that were never observed after trapping may also have moved east.

   Significance -- Red Rim serves as winter range for antelope from a very large area. If mining occurs and hunting permits are increased to reduce the wintering herd in anticipation of reduced carrying capacity, about 25% of the increases should be spread among several hunting units east of the one encompassing Red Rim.

5. Research Finding -- Few discrete migration corridors were identified, but we documented movements around the north end of Atlantic Rim through Coal Mine Draw and the Five-mile Gelo area.

   Significance -- It is unknown how important migration routes are to antelope populations, but it seems [illegible] to be conservative and protect these areas from development that might seriously hinder movements or impact antelope populations.

6. Research Finding -- Woven-wire fencing inhibited movements of some antelope to and from winter ranges. The 150 cm-tall section of fence on the southern and eastern parts of the Daley Allotment may have caused some antelope to move to other areas in winter. Although we observed that at least some animals were able to negotiate that fence, it is probable that it was the reason why so many antelope trapped immediately south of Red Rim moved toward Muddy Creek in the 1979-80 winter.

   Significance -- Woven wire fencing can produce serious consequences to wintering pronghorn (Riddle and Oakley 1978), and would compound the effects of a coal mine on Red Rim. Thus, we recommend cooperative arrangements for let-down fences, gates, or antelope passes for the Daley Allotment.

7. Research Finding -- The northeastern part of Red Rim is dry and has sparse vegetation, and is the least preferred area by antelope.

   Significance -- If Red Rim is mined, semi-permanent facilities would probably have the least impact if located in the northeastern portion.

8. Research Finding -- Red Rim is important annually to a large number of wintering pronghorn, and this study provided no data to refute the statement that Red Rim is critical for their survival.

   Significance -- If coal is mined at Red Rim, we believe it is imperative that antelope populations and distributions in the area be regularly monitored to document the anticipated losses and displacements and quantify the effectiveness of mitigative actions.

Ref: ESD/CO/83/41

Appendix 3
RME Letter

March 4, 1983

Mr. Gary Beach
Review and Analysis Supervisor
Wyoming Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, Wyoming 82002

Dear Gary:

Re: Shrub Standards

Rocky Mountain Energy (RME) has reviewed the Land Quality Division's proposed standards for post-mining shrub density and cover. We have the following comments:

- The change from shrub cover to shrub density is a realistic change in the standards.
- The recommended standard of 1 shrub/9m$^2$ appears to be reasonable provided that this standard will be adjusted based on practical data as they become available.
- The 1 shrub/9m$^2$ should be for the entire mine site including shrub patches.
- The density standard of 1 shrub/m$^2$ for wildlife habitat areas is too high. Pre-mine production (cover) appears achievable at a much lower density if grazing pressure is properly managed.
- Excessive grazing pressure is an important deterrant to shrub reestablishment. Temporary reduction of wildlife populations would benefit establishment of a diverse shrub community suited to wildlife needs.

Discussion

The previous regulation that "shrubs....be returned to a density at least equal to that existing on the area before mining" was unrealistic. The proposed standard of 1 shrub/9m$^2$



appears to be a step in the right direction. In practical terms, however, bond release may not be achievable with this standard. Because shrub reclamation standards are a relatively recent development, neither experience nor research has been sufficient to define achievable goals. The proposed standard is acceptable if it will be adjusted in the future when experience identifies a more desirable standard.

One of the assumptions implicit in the new standard is that pre-mining density is necessary to achieve production equal to that present before disturbance. In fact, given less competition between individuals, far fewer plants may be required to reach pre-mining production levels.

An example of how plant cover (production) relates to density is provided by a recent shrub experiment. RME cooperated with the BLM to demonstrate shrub reclamation technology on Red Rim (RME final report in draft). This experiment is one step in the development of effective shrub reclamation technology. Further study needs to be done, and we are not recommending tree spades as the only answer to rapid shrub reestablishment. Some of the data, however, do illustrate an important relationship between shrub cover and shrub density in the absence of grazing.

Work on the shrub study first simulated mining by removing topsoil and overburden, then replacing these materials. In a second treatment, only topsoil was removed to simulate reclamation of haul roads and facility sites. Mature sagebrush plants were then transplanted onto both the disturbed areas using a tree spade. The density of sagebrush before disturbance was 5,738 plants per acre. Transplants were replaced to a density of 310 plants per acre. The transplants responded with vigorous growth and, in fact, nearly doubled in size during the second study year. Seedlings reinvaded the area due, at least in part, to the seed source provided by the transplants. After three years, density on the transplanted area was 3,958 shrubs per acre and cover was 11.5 percent. Cover in the undisturbed native area was 7.4 percent. Thus, cover on the reclaimed area exceeded that on comparable undisturbed range while density on the reclaimed site was only 45 percent of undisturbed. More than half of the cover in the test area was provided by the transplants. As the invading seedlings mature, shrub cover can be expected to further exceed that present on undisturbed native range. It appeared that the lack of both competition and grazing was responsible for the dramatic increase in cover.

The demonstration plots illustrate that original density is not necessary to equal pre-disturbance cover. Transplants alone were established at 310 plants per acre. After only three years, cover from these 310 plants equaled 74 percent of original cover. High density appears to be related to small individual plants. Original cover may be equaled or exceeded with the 1 shrub/$9m^2$ standard. The higher standard specified for shrub patches and critical winter ranges of 1 shrub/$m^2$ (or denser) seems not only unnecessary, but may be counter-productive. Other benefits of having adequate cover provided by fewer, more robust plants include more open travel lanes and taller plants which would be more available during periods of deep snow.

Browsing has an important effect on shrub reestablishment success. As pointed out in the literature review furnished with the proposed shrub standards, the density of shrubs is dictated in large measure by their history of use or abuse. Grazing pressure presently exceeds levels recommended in the literature in some areas. During the 1981-82 winter, pronghorn antelope used sagebrush to 77 percent on Red Rim. More palatable species which were overutilized to a greater extent were rubber rabbitbrush (87 percent) and green rabbitbrush (78 percent). Some transects in the sagebrush type had average browse utilization as high as 85 percent. With utilization of this magnitude, any new plant must be protected to survive. Protection, or a lower level of use, is essential if more palatable species are to be used in the reclamation process. Shrub reclamation may be limited more by grazing than by any artificial density standard. State agencies could greatly enhance the potential for shrub reclamation by adjusting game populations at least down to recommended carrying capacities. In fact, if highly palatable species are in the reclamation plan to improve the range for wildlife, grazing will have to be reduced yet further. The paradox is that where shrub standards are highest, shrub establishment is often most difficult because of overuse.

As a note of interest, we thought you might be interested in the opinion of a group which routinely works with shrub reclamation. The Wyoming Shrub Workshop is an organization that includes field workers who are involved in shrub reclamation. Members are from mines in central and southern Wyoming. During the February workshop meeting, this group discussed the proposed shrub standards and the following represents consensus opinion:



1. Shrub standards of 1/$9m^2$ are a move in the right direction, but are still too high.

2. Shrub standards of 1/$m^2$ are unreasonable and generally unachievable.

3. Shrub standards appear to be written for sections of the state where reclamation costs are less prohibitive due to the economics of surface disturbance per ton of coal mined (i.e., Powder River Basin).

4. Grazing limits shrub success by killing transplants and seedlings.

5. DEQ/LQD guidelines are becoming too detailed and inflexible.

wrong

RME appreciates the opportunity to comment on the proposed shrub standards. If we can be of any help, please don't hesitate to call.

Sincerely,

ElRoy Taylor

ElRoy Taylor
Project Environmental Specialist

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NERCO MINING COMPANY
WESTERN DIVISION
P.O. BOX 4000
SHERIDAN, WYOMING 82801
TELECOPIER 307-672-0906
TELEPHONE 307-672-0451

NERCO

August 19, 1983

Mr. Gary Beach
Review and Analysis Supervisor
Wyoming Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, WY 82002

Mr. Harry Harju
Biological Services Supervisor
Wyoming Department of Game and Fish
5400 Bishop Boulevard
Cheyenne, WY 82002

Gentlemen:

NERCO Mining Company appreciates your affording us the opportunity to participate in your revision of the shrub density standard for mined lands reclaimed to wildlife habitat. We agree with the general concensus expressed at the August 1, 1983 workshop you held in Cheyenne, that is, seldom, if ever, will reclamation efforts in Wyoming achieve the current shrub density standards within reasonable time frames, utilizing economically feasible Best Technology Currently Available. Our following comments are based on the discussions we participated in during your August 1 workshop, the collective experiences from our Dave Johnston, Jim Bridger and Antelope coal mines, and additional experience of our reclamation and scientific staffs.

Given the results of experiments discussed at your August 1 workshop as well as the papers presented at the WDGF sponsored shrub establishment workshop in Laramie December 2-3, 1980, it appears the suggested shrub densities in your latest proposal are probably still not attainable within the LOD definition of Best Available Technology (BAT). We would suggest standards more likely attainable, for instance one shrub per 2-4 meters squared and one shrub per 12-15 meters squared, because of the present uncertainty of shrub establishment success from current reclamation efforts. We support your reference to BAT in the proposal. This reference provides companies the opportunity to utilize state-of-the-art techniques with expectations of greatly enhanced results, as opposed to relying only on frequently outdated techniques offering only limited success.



A phrase which we feel requires further clarification is "...critical or important wildlife habitat..." "Critical habitat" is well understood, and we feel if shrub species comprise a key aspect of a critical habitat, the shrub component of subsequent reclamation efforts on that site deserve special consideration. However, the term "important habitat" is very nebulous and obviously open to a wide range of interpretation. This term should either be defined or have a more explicit term inserted in its place.

One point which was not discussed at your August 1 workshop concerns documenting the proposed sparser shrub density. None of the current vegetation sampling techniques will provide reliable estimates of densities near the proposed one shrub per nine meters squared without an inordinate sampling intensity. Before such a performance standard is finalized, the WDEQ vegetation scientists should ensure a reasonable means of documenting these sparse densities.

We would also suggest that even though permit applications include maps depicting intended dispersion of reclamation community types, that the ten percent of reclamation supporting the high shrub density be specified by the company at the time of bond release. Bond release will probably follow rather closely reclamation sequences, that is, smaller discrete blocks (50-200 acres) rather than larger blocks (500+ acres). Therefore, it is quite likely that some discrete bond release application areas will contain no sites of dense shrubs, while other areas may support well over ten percent dense shrub cover. Obviously the ten percent dense shrub cover will not include ten percent of the surface of each bond release application. It will be incumbent on both the operator and the regulatory representatives to monitor cumulative area totals and insure subsequent reclamation efforts will meet the overall ten percent goal.

Again, gentlemen, thank you for the opportunity to participate in your revision effort.

Sincerely,

William F. Oelklaus
Supervisor, Environmental Affairs

WFO:cyr

SUN

SUNEDCO COAL CO.
7401 W Mansfield Ave
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Post Office Box 35B
Lakewood CO 80235
303 989 9280

August 11, 1983

Mr. Gary Beach
Wyoming Dept. of Environmental Quality
401 West 19th Street
Cheyenne, Wyoming 82002

RE: Shrub Density Standard

Dear Gary:

We have received your June 24, 1983 letter concerning shrub density standards, and also attended the August 1, 1983 meeting where the standard was discussed. As you may know, we are very concerned about this standard as we have proposed wildlife habitat as a part of our postmining land use. We should begin by saying we understand the difficulty you face in arriving at a regulation which is acceptable to everyone involved. I would like to emphasize that we have two basic concerns when it comes to final reclamation. On the one hand, as a mining company we have an obligation to perform all of our activities in compliance with applicable laws and regulations with one of those obligations being to return the land to a condition similar to the premining conditions. On the other hand, we are the owner of the area being mined. As a private landowner, our approach to land management is no different than any other landowner in the area. Our goal is to maintain the land in the highest and best use available to us. Naturally enough, we take this into consideration in our reclamation plans and in the past, we have always identified wildlife habitat as a part of the postmining land use.

Because our permit area is approximately 8200 acres and we are not actively mining the entire area, a large portion of the unmined land is currently being used for grazing. As stated earlier, we always thought it advisable to identify at least a portion of the postmining land as wildlife habitat and have intended so far to attempt some shrub planting to accommodate such a postmining land use. Up until now it has been relatively easy to reconcile any differences that we may have in our approach as a mine operator with those of a landowner. In fact, the two seem to run hand-in-hand.

The proposed regulations for shrub density have given us cause to look again at our approach to postmining land use. As an operator, it has been relatively easy to commit to a wildlife habitat use



because, in fact, the land will be used by wildlife whether or not we chose to designate it as such. The current interpretation of shrub density requirements has allowed us to replace some wildlife habitat and still maintain a high degree of agricultural use for the area. After thoroughly reviewing the proposed regulations, it appears that we could have reason to reconsider our reclamation approach. Because of these concerns, we are writing these comments on the proposed regulations.

Our understanding of the regulations, as written, is as follows: When an operator designates one of the postmining land uses as wildlife habitat, he will be expected to replace at least 10 percent of the affected lands (meaning the entire area which is mined) to a density of at least one shrub per square meter. The other 90 percent of the mined area must have an average of at least one shrub per nine square meters. Unfortunately, the establishment of these densities will have the long-term effect of creating an almost total use of wildlife habitat, particularly in the sagebrush areas. Our understanding of this regulation is that some shrubs must be planted over the entire mined area and the densities differ only between the 10 percent and the 90 percent.

The proposed regulation then says, "Densities shall be achieved through the best technology currently available." To discuss for a moment one shrub which is commonly found in our permit area, big sagebrush, there has been a considerable amount of research done in the west regarding sagebrush (including on our own Big Horn Ranch near Buffalo) and it is fairly well proven that good sagebrush stands cannot be established by broadcast or drill seeding. Most certainly the density on the 10 percent area cannot be established within ten years by these methods of seeding. This leads us to conclude that containerized plantings must be used at great expense and even then we may not be able to achieve the required density. As you can well imagine, we have attempted to identify the expense which would be incurred by such a planting. Our calculations are as follows:

7390 acres anticipated disturbance

739 acres = 10% of total disturbed area

$$739 \text{ acres } \frac{(4047 \text{ M}^2)}{\text{Acre}} = 2{,}990{,}733 \text{ plants}$$

Cost $1.79 per seedling = $5,353,412

A similar expense would be experienced on the other 90 percent even though the density is approximately 1/9th of the above density, the area is 10 times as large. In effect, we would be looking at approximately $10,000,000 (assuming a 100% success rate) to reclaim our mined area to "wildlife habitat". In fact, it might cost two or three times this amount. This has lead us to look at the

propriety of such a postmining land use. We are quite understanding of the need for some wildlife habitat and we are also extremely conscious of our desire to maintain our land in its highest and best form. As a matter of policy, our company is committed to ranching as the highest and best use of the land for postmining land use and we have been able to justify inclusion of some wildlife habitat. To comply with the proposed regulations would be quite burdensome and it would, in effect, reduce the value of the land. Therefore, we feel that if the regulations are passed in their proposed form we would have no choice but to change our postmining land use under Chapter IV (2) a (2) from wildlife habitat to a "higher and better use".

In particular, we are concerned about having to put back any of the several species of sagebrush. Because the control of sagebrush has been such a major concern in the west, we feel an obligation to severely limit our replacement of sagebrush as a reclamation crop. As a landowner, we do not feel this would constitute a good land management practice and question whether it would be in the long-term best interest of the region to do so.



The memo of June 24, 1983, states that the LQD regulations take economics into consideration under the definition of "best technology currently available". In reading those regulations we do not interpret the language to mean that the administrator must consider economics. Perhaps some language could be added to the proposed shrub density regulation to clearly state this requirement.

In summary, while we appreciate the need for return to wildlife habitat we are concerned about the apparent stringency of the proposed standard. If passed in its currently proposed form, we may have to consider deleting wildlife habitat from our postmining land use.

Thank you for the opportunity to comment. We look forward to further discussions on this topic.

Sincerely,

Gerald T. McPhee

Gerald T. McPhee
Manager, Permits & Environmental Compliance

GTM:mdn

THE CARTER MINING COMPANY
POST OFFICE BOX 3007 • GILLETTE, WYOMING 82716 • (307) 682-8881

August 12, 1983

RE: Shrub Density Standard

Mr. Gary Beach
Department of Environmental Quality
Land Quality Division
401 West 19th Street
Cheyenne, Wyoming 82002

Dear Gary:

The Carter Mining Company personnel have reviewed the June 24, 1983 proposed shrub density standard and have developed the following recommended changes:

"When wildlife habitat is part of the post-mining land use, shrubs shall be returned to an average density of (1) 1 per 4m² on at least 10 percent of the (2) restored native rangeland and an average density of (1) 1 per 20m² on all remaining (2) restored native rangeland. Establishment of these densities shall be achieved through the use of (3) best available technology (BAT). Exceptions may be authorized where the baseline data shows a lower density. The distribution of the higher shrub density areas will be determined on a site specific basis. (4) Native trees shall be returned to a density at least equal to that existing on the area before mining. In area containing critical or important wildlife habitat the Wyoming Game and Fish Department shall recommend specific reclamation goals for shrub density and cover."

Reasons for the recommended changes are as follows:

(1) The current methods for establishing shrubs are either extremely expensive or too inconsistent to establish the recommenced goals of 1 per m² and 1 per 9m². If economical methods are developed, the Wyoming Game and Fish Department still has the option to specify special shrub density goals for critical areas. A density of 1 per 4m² will provide a source for the development of more dense shrub stands.





(2) The standard should only apply to native rangeland areas, not pasturelands, haylands, or croplands as implied with "all remaining surfaces".

(3) BAT is consistent with Land Quality Division regulations.

(4) It should not be necessary to restore the windbreaks of introduced tree species that existed prior to mining.

Sincerely,

Dennis R. McGirr

Dennis R. McGirr
Reclamation Coordinator

DRM/cjg

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Appendix 5

January 6, 1984

FIS 237/15
USDI/USM/BLM
Rawlins District
Overland Resource Area
Red Rim Draft PEIS/EIS
Carbon County
A-30, 31, 5-20, MD-27

Mr. Allen D. Klein, Administrator
Western Technical Center
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 Fifteenth Street
Denver, Colorado 80202

Dear Mr. Klein:

In response to your notification of December 7, 1983, we have reviewed this revised document and offer the following comments.

S. VIII - Winter population estimates of pronghorn do not range from 700 to 1,400. The current estimate of pronghorn wintering on Red Rim is 2,600. The low number was based on 1978 Baggs DAU population estimates. Numbers have increased dramatically since 1978.

P. AP - The data on numbers of deer hunters in the Baggs herd unit are incorrect. The data presented are for only hunt Area 55.

"The problem of having an existing pronghorn herd population which exceeds the carrying capacity of the land will continue until the total numbers of pronghorn in the Baggs Herd are reduced." We know of no documentation that this herd is over carrying capacity. We've said we are over our population objective. That is not carrying capacity. That objective is based on other concerns as much as biology.

"...fragmentation of the coal...could result in a long-term loss of wildlife habitat...." We contend it will result in a loss of wildlife habitat. The language in this document appears designed to mask the issue. Where impacts are discussed, the words "could", "might", and "may" are used to give the reader the idea there may not be any impacts. Where reclamation is discussed, the words "would", "will", and "can" are used to give the reader the idea there is no problem.

Mr. Allen D. Klein
January 6, 1984
Page 2

P xi - "The technology for long-term establishment of certain shrubs...is not, at present, clearly defined...." We are unsure of this meaning. If it can be done, or has been done, clarification is in order.

- "Reclaimed lands would support some level of pronghorn use 10 to 12 years after planting." How much use and for how long should be defined, along with what this would do to the ability of these lands to support the Baggs Herd.

- We do not agree with the authors that a 40-45 year impact "short-term." We consider 10-15 years short-term.

- "Impacts to pronghorn and pronghorn habitat would be less under the partial-designation alternative than under the no-designation alternative." This statement should be supported with quantification.

- Designation as unsuitable for mining those areas on which reclamation is not technologically and economically feasible is required by law. This fact should be noted.

S. I-6 - Again, use of 40-45 years as "short-term impact" is unacceptable from the wildlife standpoint, to this Department. Ten to fifteen years is considered short-term in impact analysis. We consider impacts over 40-45 years to be long-term impacts.

P. I-13 - This is the first reference in this document to the fact that this antelope population is above objective. It is mentioned many more times in the text. We feel this is a moot point. All of our impact analyses assumed that this population would be at its objective before this mine was initiated. Whether or not a population is presently at objective makes no difference in this analysis.

BLM data do not support the contention that current numbers of antelope on the Red Rim or Muddy Creek winter ranges are causing over-utilization of key shrub species.

S. I-15, Alternative A. The document notes that declaring the area unsuitable for mining would preclude extraction of 69.3 million short tons of coal. Data gathered by the Office of Technology Assessment (1981), indicates federal coal leases have already been issued for tonnages far in excess of projected coal demand, even without taking private coal production into consideration. Analysis of this Office of Technology Assessment further indicates to us that the percentage of coal contributed by this mine would not be a significant proportion of the overall coal production in this country. Conversely, this mine will impact a significant proportion of the world's pronghorn population, for which coal is great number demand.

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Pp. I-13, Alternative B. Not Designate Any of the Petition Area as Unsuitable for Surface Coal Mining Operations. - "Selection of this alternative would not imply approval of surface coal mining operations within the petition area." We believe that if none of the petition area is designated unsuitable for mining, the agencies have decided it can be mined, and thus a permit will be issued. It would be illogical to presume otherwise. It is our opinion that failure to designate the area as unsuitable will result in its being mined.

Pp. I-16,17 - Why, if there is essentially no problem for pronghorn from mining Red Rim, as the BLM planning documents stated, did BLM decide there should be no coal development on other critical winter ranges? We believe that this decision was made because the rest of the pronghorn in this herd need the remaining winter range. This is tacit recognition that there are going to be large impacts from mining critical winter range on Red Rim, yet the area was declared suitable for mining.

Page II-1 - Data on winter sage grouse distributions and numbers are incorrect. Data from the Rocky Mountain Energy Study indicate that all of the Rim was used during the winter of 1979-80, while major concentrations in the winter of 1980-81 were in the southern portions of the area. Up to 3,000 birds have been seen using the Red Rim.

P. II-3, Para. 2 - Aerial photographs of Red Rim, in Irwin's Red Rim Report document the effects of snow cover and the fact that Red Rim is surrounded by a belt of deep snow in severe winters.

P. II-3, Para. 2 - This section implies that pronghorn move widely in the winter. While it's true that pronghorn use of winter range varies with the severity of the winter, prevailing winds, snow depth, and availability of forage, this movement occurs within the bounds of the traditional winter range, except in mild winters.

We disagree with the idea that critical winter range delineation means there are no physical limitations on distribution during severe winters. Physical limitations do exist in the following forms. Highway 789 to the west is fenced with woven wire, as is Interstate 80 to the north. The Continental Divide is east of the rim and there is considerable limitations to the south around the state line. We agree that, given freedom of movement, antelope will use areas outside the critical winter range in mild winters, but we can demonstrate that these areas have physical boundaries around them during severe winters.

P. II-3, Para. 4 - Aerial counts are often modified by a correction factor, not a "population model" factor.

P. II-4, Para. 3 - The population objective for this herd is only partially related to the ability of the area to support pronghorn. It's also related to socio-politics - the desires of the various publics. There is no population objective for Red Rim because antelope there do not constitute a separate and distinct population, but rather only a portion of one.

P. II-4, Para. 1 - The Baggs Antelope Herd is being reduced to bring the herd to planned objectives, not because of range deterioration and over utilization. Reduction of antelope on Red Rim has been difficult because the private landowner involved will not allow hunter access. Most of the reduction will, therefore, occur in other portions of the Baggs Antelope Herd. This means that the number of antelope remaining on Red Rim in winter will represent an even greater proportion of the Baggs Herd - perhaps as much as 20% if there are 2,000 antelope wintering on Red Rim following herd reduction.

P. II-6, Para. 2, Table II-2 - The number of antelope in nearby portions of Colorado and Wyoming has nothing to do with the Red Rim issue. This entire paragraph is immaterial, and should be deleted.

P. II-6, Para. 3 - As was documented the last three years, pronghorn use of Red Rim is high even during mild winters. During severe winters, pronghorn move to Red Rim for food and shelter.

P. II-6, Para. 4 - Winter population estimates are given here as a range. That is incorrect. Animals are not static. The real estimate is based on the maximum number seen on the site - the number of animals depending on the site in winter. Estimates of losses and impacts should also be based on these maximums.

P. II-6, Para. 5 - We would question why Yonkum's pronghorn management guidelines are used here. By nature, they have to be general, yet work done by this Department, BLM, and Irwin was site-specific. We feel those site-specific data more fully describe factors affecting antelope on Red Rim.

P. II-10, Para. 2 - This whole discussion of the nutritional value of sagebrush is unnecessary. Unless reclamation can be designed to change the nutritional value of sagebrush, this is filler which is restated in the next paragraph.

P. II-11, Para. 3 - Are pronghorn feeding on sagebrush in areas, where plants protruce above the snow, or on south-facing slopes and windswept ridges where there is little snow? It's not clear in this paragraph.

P. II-11, Para. 4 - We feel data concerning the importance of free running water during winter to be misrepresented. The winter of 1983-84 was one of the wettest ever recorded for this area. Antelope were not forced to use new traditional winter ranges. In 1983-84 water was important in winter [illegible] but that winter was quite rare for this area.

P. II-11, Table II-4 - This table of nutritional values of winter forage adds little to the document. It should be deleted.

P. II-13, Para. 2 - "Owing to increased livestock use in the proximity of water, plant communities and associated species near Separation Creek have been influenced to a much greater extent than those in the breaks near the Red Rim escarpment." Does this mean that livestock have overgrazed areas near streams and altered the vegetative composition? Some clarification is in order.

P. II-13, Para. 5 - With all the rationalization removed, we interpret this paragraph to say BLM's vegetation work was not done well enough to allow comparisons with other studies. If so, why mention the study? The same is true of the next paragraph. We would say that the limited data collected by OSM in a day or two on this site are of similar value.

P. II-14, Para. 2 - Data with inadequate samples from only a portion of the area are not suitable for comparison with any other studies. These should be omitted.

P. II-14, Para. 4 - Why include a discussion of SVIM if habitat data are not available? We recommend this be deleted also.

P. II-21, Land Use - For comparison with antelope numbers, we suggest it may be appropriate to show how many cattle use the 2,430 AUM's available on this allotment, over the past 5 years.

P. III-11-13 - We see here what the coal market model says about coal demand.

DOE estimates do not agree with more recent figures of the Office of Technology Assessment. The Office of Technology Assessment report indicates that much less of the nation's demand for coal will be met by this mine.

P. IV-1 - Wyoming law requires restoration of "highest previous use," and that is the use of highest economic value to citizens of the region. In our opinion, that use is wildlife habitat, not livestock grazing, on Red Rim. Wildlife habitat cannot be restored in sufficient quantity to support wintering antelope, therefore, the area is unreclaimable. We contend this allegation is hardly frivolous.

P. IV-2 - "During the life of the mine, a maximum of approximately 4,900 acres of mined land would be unreclaimed at one time." We do not agree with this statement. On that date, reclamation must restore shrubs. Such reclamation has been done with limited success in Wyoming, and we do not believe it can be done on Red Rim within any reasonable time frame. The



document considers 40-45 years short-term, which is an admission that there will be a lot more than 4,900 acres disturbed at one time. Additionally, we examined approximately a dozen comparable EIS, none of which considered 45 years a short-term impact.

P. IV-2 - BLM's mitigation requirements for the Red Rim lease are a moot point, since the Wyoming DEQ has stated reclaimability is a "frivolous" issue (Page IV-1). Therefore, we have no assurance any of this will be considered in the mine plan. The habitat mitigation plan proposes things that may or may not mitigate losses. We have no assurance these will be part of the mine plan, or that there is a contingency in case BLM's mitigation requirements do not work.

We question the need for three reclamation scenarios, including non-restoration of winter range, when restoration of that range is the important issue in this petition.

P. IV-3 - "...Wyoming DEQ and OSM could require the reclamation stipulations outlined in this scenario...." They also might not, in which case the area will not be adequately reclaimed for wildlife and livestock.

"All mined lands would be reclaimed to multiple-use native grassland for livestock grazing and wildlife habitat." This Department has been working with both agencies for some time, and we have in the past accepted loss of shrubs on noncritical winter range. We have also agreed with trade-offs on private lands, where shrub-grass habitat has been converted to grassland. We do not want anyone to presume, though, that because grassland is habitat for some wildlife (much less wildlife than found in shrub-grass areas), it is valuable to wintering antelope, or that it is quality wildlife habitat. We have accepted conversion of mined areas to grasslands because it occurred in areas not critical to wildlife. Grassland is not antelope winter range, and it will provide no pronghorn critical winter range. We recommend that fact be made clear in the final EIS. Restoration to current DEQ standards would not meet antelope winter needs. The law requires restoration to premining shrub densities.

P. IV-3 - Reclamation Scenario 1 - "Special attention would be given to recreating those narrow draws (important as shelter for pronghorn and for collection of moisture for shrubs)." We feel the author has failed to understand the nature of this winter range. Shrubs in the draws are unavailable to antelope in severe winters because they are buried under snow. Those on the windswept slopes and ridgetops are used as forage. How is moisture to be provided for them? We know that shrubs in draws are more likely to grow, but we also know that those are largely useless to antelope during winter when they are unavailable due to heavy snow cover.

"The best current available technology to enhance shrub community development would be utilized....." Exactly what is that? Previously in this

document, such technology was said to be "not clearly defined," which means nobody knows how. Are we to depend on something that has never been done?

"...estimate potential loss of pronghorn critical winter range." The fact is that antelope will be lost. The word "potential" is misleading in this context.

"...this effort would require extensive use of tubelings, transplants, and seedlings." Our information indicates that only 30% of tubelings survive if there is no drought. Transplants have had spotty success, and seedings of sagebrush are unsuccessful in most of Wyoming.

"...re-establishment of optimum vegetation patterns for pronghorn herd maintenance...." What exactly are those vegetation patterns?

"Not all of the habitat components are known...." How can you re-establish habitat components if they are not known?

Shrubs planted in "selected areas of greater effective moisture" would be in draws, under snow, and unavailable to antelope in winter.

Pp. IV-5 & 6 - We feel the use of any reclamation scenario except No. 1 to be unacceptable. Others will not restore the premining land use, nor restore densities of shrubs sufficient for critical antelope winter range.

P. IV-6 - We reiterate our opposition to the term "short-term impacts." Ten to fifteen years is short-term, 40-45 years is not.

P. IV-7 - Use of a reference nearly 10 years old to prove that pronghorn are a valuable resource creates a serious understatement. It's now estimated that Wyoming contains 75% of the world's pronghorn. Given that, it seems obvious that they have at least "...some value as a natural and scientific resource..."

"Critical winter range is valuable habitat for pronghorn." This is extremely understated. Critical winter range, by definition, is essential habitat for pronghorn.

P. IV-8 - Red Rim was cooperatively classified as critical winter range in March of 1979 by the BLM and the Department. The data presented here are incorrect.

The comment here on winter population estimates ignores the concept of critical winter range. There is a great deal of overemphasis of high and low estimates. The important figure is the maximum count. That always occurs in late winter. Counts illustrate that Red Rim is important to a lot of pronghorn, even in mild winters. Furthermore, four of the last severe



winter (1978-79) the number of pronghorn increased from 689 to 1,408 from early January to late February, as winter severity increased. We wonder how many pronghorn might have been there in February, 1983, if the winter had been severe. After all, there were 2,073 there in early 1983 even though the weather was mild.

Data concerning the percentage of antelope from the Baggs Herd that used the Rim at any time are incorrect. Our analysis was based on this population being at objective, not at the current level.

P. IV-9 - It is stated that the Department will reduce this population below the objective of 7,200 animals should the mine be leased. This is correct but it does not mean that this is our preferred alternative. We will be forced to reduce this population commensurate with reductions in available critical winter habitat. This statement is referred to many times in the document, but not in context.

We feel the document should include an estimate of pronghorn that would be lost to causes other than winter range loss, such as fencing.

P. IV-11 - The 10 and 12 year lag "before restored lands could support the premining level of pronghorn use" is idealistic, at best, and totally unsubstantiated by any data of which we are aware.

"Given time, sagebrush would become re-established on reclaimed sites...." Based on data from sites with similar rainfall, topography, and soils in Wyoming where you have data showing this has already occurred, what is the estimated time period?

P. IV-13 - Heavy snows make sagebrush in smaller draws inaccessible in nearly all normal to severe winters. The last sentence of this section, which pertains to snow accumulation in draws, makes no sense - it doesn't logically follow the rest of the paragraph.

P. IV-14 - "While density is an important measurement, the more important factors on the site are cover, production, and availability." No matter what the production or availability, a stand of sagebrush with 10 plants per acre is not going to be good winter range for antelope. All factors have to be considered. No data indicating that this herd could be supported by lower density shrub stands on critical range exists to our knowledge.

P. IV-17 - "The value of undisturbed areas between pits, roads, and stockpiles is arguable. Pronghorn have adjusted to various mine activities at numerous western mines." Have any of these mines been in critical winter range? If not, can anyone rationally presume pronghorn in such areas will respond the same way?

"Spoil piles and pits...might affect forage availability and pronghorn movements." A spoil pile with nothing growing on it is obviously going to decrease available forage. Pits, which are typically fenced, and even those that are unfenced, are going to restrict pronghorn movements.

"There is no evidence to suggest that revegetation of the Red Rim area is technologically infeasible." There has been no such allegation to our knowledge. The allegation concerns reclamation, which is different than revegetation. This document states that shrub re-establishment is probable, but the discussion concerns saltbush and shadescale, species which are not going to restore the winter range for pronghorn.

This section makes no mention of studies where re-establishment of sagebrush in areas of 9 inches of precipitation has been documented. The issue is pronghorn winter range, and sagebrush is the most important component of that range. BLM staff specialists felt re-establishment of sagebrush during the life of the mine was impossible, and that nowhere in Wyoming has any such reclamation been demonstrated. Livestock-exclusion, and probably pronghorn exclusion, would probably be required for at least 10 years for even minimal success.

P. IV-16 - OSM and DEQ have predicted reclamation Scenario 1 on a 10 to 12 year turnaround, yet the last sentence of paragraph 3 states that the mining company will have to prove that this scenario is technically feasible. If it isn't currently feasible, we do not feel it should be included in this document.

"...the mining and reclamation plan would have to show that it (restoring pronghorn critical winter range) could be done before a permit to mine could be granted." We know of few mines denied a permit in Wyoming. Despite such stipulations, we are not confident a permit would be denied. In taking over the Federal responsibility via the state coal program, DEQ also accepted responsibility for unsuitability petitions such as this, and thus decisions affecting leasing.

Reduction of pronghorn in the Baggs herd Unit would be undertaken whether or not Red Rim is mined, but much of the reduction in the herd would occur off Red Rim, where range conditions are not as good, and because hunter access is limited on the private lands in question and the associated fences.

P. IV-17 - The section on Irwin's study of pronghorn distribution is interesting, but of little value because there was never a normal or severe winter during that study. Those data cannot be used to accurately predict what may happen in a bad winter.

As stated before, certain limitations dictate that pronghorn reduction in the Baggs herd will be done mostly in areas other than Red Rim. It is not



legitimate to use a program to reduce pronghorn on Red Rim to prevent their dying from loss of mined winter range as part of the justification for that mine. Such a massive antelope reduction on Red Rim would not be necessary if the critical winter range were not mined.

"OSM and DEQ estimate that a maximum of 4,053 acres of critical winter range would be unreclaimed at any one time." Given the lack of data on shrub restoration, we feel this statement is only opinion. It might be true if Reclamation Scenario 3 (no winter range restoration) is used.

It is our opinion the selection of either proposed BLM alternative will not insure the maintenance of the population of antelope using the Rim. We have never agreed with either.

Paragraph 5 should be deleted from the text.

P. IV-20 - We disagree with the statement that the population objective is dependent solely on the carrying capacity of the winter ranges. While carrying capacity of a winter range is the limiting factor on a population, population objectives are often set at a much lower number due to other game management considerations. A pronghorn reduction program would not be undertaken to "protect habitat quality", but because mining of the winter range might eventually starve the pronghorn anyway. We suggest that all references to pronghorn reduction to fit a lower carrying capacity be deleted.

P. IV-21 - We disagree with the statement that with Scenario 3, the hunting revenues lost would be "short term." Few organizations would consider loss of funds over a time period of 40 years "short term."

P. IV-22 - "There are no known data to quantify the exact number and types of topographic features that would be necessary to restore reclaimed lands...." Obviously, what exists there now is what is necessary. "Irwin and others (1983) stated that...are important during normal winters...." Irwin and his students did not research during what we consider to be a "normal" winter. All were mild.

"...pre-mining topography would be restored to the extent technically feasible." That statement indicates that if restoration of topography is technically possible, DEQ will not require it. This is not suitable for use as an analysis assumption. We suggest "premining topography will be restored."

P. IV-... we dispute the idea that reclaimed lands would support any significant level of winter pronghorn use 10 to 15 years after planting. There is no evidence for this. We object to use of a pronghorn reduction program speculative at best to justify this mine.

Reduction of pronghorn under reclamation Scenario 1 might be short-term, but we believe that scenario is impossible, since there is no evidence it can be done. We recommend it not be included in this document.

Pp. IV-45-45 - All of the reclamation possibilities noted here are theoretical. None have been attempted, let alone accomplished. We feel they do not contribute to the document.

P. IV-46 - "It is doubtful, however, that the density is as important as the amount and availability of forage." We would ask that data or references be provided here, substantiating this statement.

P. IV-47 - "Researchers with Argonne National Laboratory working on test areas at the Jim Bridger Coal Mine in southwestern Wyoming have concluded that operators will probably be able to meet the OSM-mandated ten-year revegetation success responsibility period for arid sites...." That success is just to get some kind of vegetation to grow, not to restore shrubs. Obviously, the restoration of pre-mining shrub density remains in question. It is unwarranted to assume nearly 100% sagebrush survival in this area. Mortality rates in the Gillette area, where precipitation is over 12" are only 60 to 70 percent.

We do not agree that reduction of 50 percent or more in shrub density is a "modest reduction."

P. IV-48, Table IV-5 - We doubt that spending $4b,000 per acre for reclamation can really be considered profitable. These costs, based on figures from the Seminoe No. 1 and No. 2 mines, are unrealistic. Those mines are not restoring critical winter range, nor large acreages of shrubs, so it is our opinion these costs are undoubtedly greatly underestimated.

Atriplex has not been shown to be an effective substitute for sagebrush on critical antelope winter ranges in Wyoming.

Pp. IV-50,51 - The EIS indicates that under Scenario 1, it may be possible to return the area to full production for critical pronghorn habitat "if all factors were optimal". The document suggests that it will take a minimum of 10 to 12 years after planting each reclaimed mine area. In fact, these mines will be occurring across Red Rim for 40-45 years. It may not be sufficiently reclaimed to full production for, at best, 30 to 40 years. Obviously, this presents a much different picture than merely stating, as was commonly done in the document, that reclamation will be possible in 10 to 12 years. We do not agree that critical pronghorn habitat can be restored in 10-12 years, using any techniques, much less those described in the EIS. There is no evidence anywhere in the West indicating this can be done. Therefore, it is our contention that a decision to destroy critical antelope winter range cannot be justified.



P. IV-52 - There is no evidence to support the notion that it is possible to produce a more vigorous plant during reclamation so that reduced densities of shrubs will support these antelope.

We agree that suitable soils for replanting big sage will be very limited post-mining. How many acres can be reclaimed?

P. IV-54 - Exclusion of the Separation Creek area will help minimize impacts to grouse broods, but will have little impact on loss of important wintering sites for that species.

P. IV-55 - In our experience, the reclaimed areas will have to be fenced or wildlife and livestock will seriously hinder plant success. This means a further reduction in forage available for wintering antelope. Antelope will still be excluded from critical winter range.

P. IV-56 - References are made to the Game and Fish having to reduce herd numbers to compensate for habitat losses due to the mining. However, simple reduction of numbers across the entire DAU will not necessarily reduce the numbers dependent upon Red Rim. It is likely that there would have to be herd reduction far below the desired objective to insure that a sufficient proportion of the pronghorn normally using Red Rim were removed, especially so if hunter access continues to be limited.

P. IV-57 - We agree that the loss of the topographic features of the rim will make it impossible for adequate soil/moisture regimes to be replaced.

P. IV-62 - The loss of ground water for over 100 years will seriously hinder any reclamation attempts. We recommend that OSM and BLM should consider stipulating that the company will have to irrigate for that length of time to insure reclamation success.

Appendix F, P. F-2 - We are not willing to accept lower "more reasonable" densities of important winter food, big sagebrush, on critical winter range. This document proposes a reduction from 7,144 plants/acre to 2,000. We find this proposal unacceptable for the wildlife concerned.

Please contact us if we may be of further help.

Sincerely,

FRANCIS PETERS
Assistant Director
Operations
Wyoming Game and Fish

Appendix 6

THE UNSUITABILITY CRITERIA

1. Lands in the Federal land preservation system (e.g., National Parks, Wildlife Refuges, Trails, Wild and Sceenic Rivers, Recretion Areas, Wilderness Areas).

2. Lands within rights-of-way or easements.

3. Lands within 100 feet of cemeteries and rights-of-way for public roads, or within 300 feet of public and residental buildings.

4. Wilderness study areas, while under review for wilderness designation.

5. Class I scenic areas.

6. Lands used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments.

7. Publicly owned places on Federal lands which are listed on the National Register of Historic Places.

8. Lands designated as natural areas or as National Natural Landmarks.

9. Federally designated critical or essential habitat for threatened or endangered plant and animal species.

10. Lands containing habitat considered critical or essential for State-designated threatened or endangered plant and animal species.

11. Bald or golden eagle nests or sites, including appropriate buffer zones that consider habitat for prey species.

12. Bald or golden eagle roost and concentration areas used during migration and wintering.

13. Falcon cliff nesting sites and appropriate buffer zones that consider prey species' habitat.

14. High-priority habitat for migratory bird species of high Federal interest on a regional or national basis.

15. Essential habitat for resident fish and wildlife species of high interest to the State (e.g., active dancing and struting grounds for sage grouse, sharp-tailed grouse, and praire chicken; critical winter ranges for deer, antelope, and elk; and migration corridors for elk).

16. Lands in riverine, coastal, and special flood plains (100-year recurrence).

17. Lands committed by the surface management agency to use as municipal watersheds.

18. Natural resource waters identified in State water quality management plans and a buffer zone of one-quarter mile from the outer edge of the far banks of the waters.

19. Alluvial valley floors (AVFs) considered important for agriculture, or land outside an AVF if mining would materially damage surface or underground water systems that supply the AVF.

20. Lands deemed unsuitable by criteria proposed by a State and adopted by the Secretary of the Interior in rulemaking.

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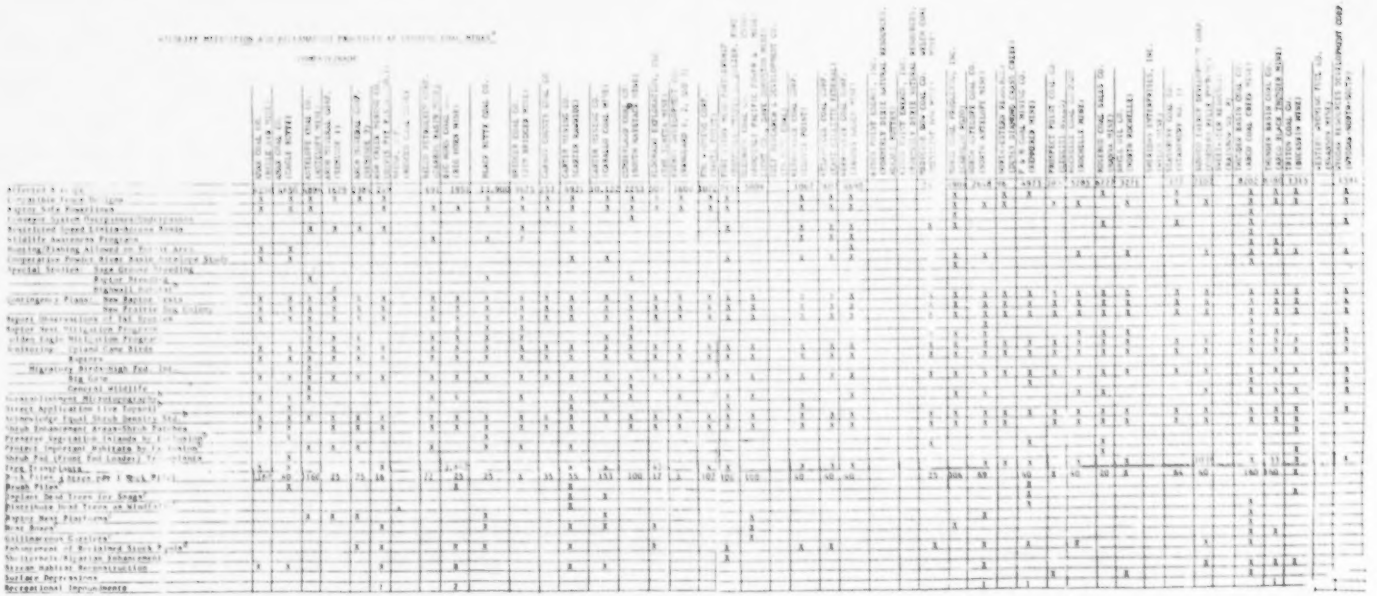
Appendix 7



a. An "X" means the practice is utilized in the subject operation. If a number appears, this quantifies the extent of the practice.

b. Economic/technological/legal constraints limit the effectiveness and/or degree to which these practices may be employed.

c. Temporary features.

# Rawlins

## Carbon County Chamber of Commerce

Carbon County, and Rawlins, receive economic benefit from both abundant wildlife and mineral resources. We depend on hunting and tourism dollars as well as wages and revenue from area mining operations. Therefore, we recognize the importance, and the need, of a well-balanced, well-considered solution to the problem facing us all at Red Rim.

Because of our concern, and because it is our investments, our businesses, our livelihoods, and our jobs that are at stake, we feel any decision must be based on a wholistic approach to the full utilization of all natural resources. To summarily prohibit coal mining at Red Rim would be to deny our community of a viable and potentially crucial opportunity to enhance, and perhaps even save, our future local economy.

In that regard, I would hope a final decision on this issue would permit our community to enjoy not only the benefits of the Red Rim antelope herd, but the benefits of Red Rim coal as well!

511 West Spruce • P.O. Box 1331 • Rawlins, Wyoming 82301 • Telephone (307) 324-4111

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Thank you for your comment.

CCEDC
Carbon County Economic Development Corporation
CARBON BUILDING, SUITE 325
(307) 328-2659 RAWLINS, WYOMING 82301

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January 22, 1985

Allen D. Klein, Administrator
Western Technical Center
OSM
1020 15th Street
Denver, CO 80202

Dear Mr. Klein:

The Carbon County Economic Development Corporation wishes to take this opportunity to offer comments on the Draft Red Rim, Wyoming Petition Evaluation Document/Environmental Impact Statement (DEQ/OSM-PE-5 and OSM-EIS-12), developed by Wyoming's Department of Environmental Quality and U.S.D.O.I.'s Office of Surface Mining Reclamation and Enforcement, and published in October, 1983.

We will address three major areas in our comments. First, we will address the petitioner's (National Wildlife Federation and Wyoming Wildlife Federation) allegation that surface coal mining operations in the Red Rim petition area would adversely affect fragile land which is valuable habitat for pronghorn antelope. Second, we will address the petitioner's allegation that reclamation of this land is not technologically and economically feasible under the Surface Mining Control and Reclamation Act of 1977. And finally, we will discuss the impacts on our local economy should Red Rim be declared unsuitable for surface mining as a result of this petition process.

A First of all, let it be clear that we value our local antelope herds and their needs and requirements as much as anyone else. If we believed that mining Red Rim would decimate our local herds and completely destroy their winter range, we would not be offering these comments. If these coal lease tract lands were our only valuable habitat for the pronghorn, or even a major portion of the pronghorn's valuable habitat, our concerns would lie with preserving these lands. We realize how important the pronghorn is to our economy, both directly and indirectly. But, there is plenty of crucial winter range available to the pronghorn.

A We disagree with your statement that "there is plenty of crucial winter range available to the pronghorn." Critical winter range for the Baggs Herd is limited to the Red Rim and Muddy Creek critical winter ranges. As discussed in section IIA and elsewhere throughout the PED/EIS, the importance of the Red Rim critical winter range to pronghorn increases in proportion as the Muddy Creek critical winter range becomes inaccessible to those pronghorn occupying the northern portion of the Baggs Herd unit area (on or near Red Rim) during severe winters. See response to comment No. 100F.

B

It seems to us, by law, that the antelope herd to consider here is not just the site specific one, but the area herd, or what Wyoming's Game and Fish calls the Baggs Data Analysis Unit. It must be remembered that mining on Red Rim will take place sequentially, and not simply all at once. Small areas will be mined, while reclamation activities will proceed closely behind. Calculations of disturbed Red Rim winter habitat at any one time during mining indicate that only nine percent of the total Red Rim winter habitat would be affected. This translates into less than two percent of total available winter habitat in the Baggs Data Analysis Unit. Such an impact assessment renders it hard to believe the petitioner's allegations that "any threat to this species (antelope) would pose a danger to the whole family." At most, a few antelope on Red Rim itself might be affected. Any major disruptions in antelope numbers on Red Rim would be bolstered by repopulation from the rest of the herd in the Baggs Data Analysis Unit. And with over 350,000 antelope in Wyoming, we sincerely doubt that mining on Red Rim would pose any danger to the antelope's long-term survivability as a species. It is also interesting to note that, at least in 1982, the population estimate for the Baggs herd was 4,800 animals higher than what Game and Fish determined was an optimum number.

B

The pronghorn population analyzed in the PED/EIS is the Baggs Herd Unit, not merely those members of the Baggs Herd that occupy Red Rim.

See response to comment No. 113B for a discussion of the amount of mining disturbance that would occur on the proposed coal lease tract and on the critical winter range.

Section IVB states that the survivability of the pronghorn species would not be threatened should Red Rim be mined.

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C

It is well known that antelope have adjusted very well to mining activities here in the county in the past, and will prosper as long as they aren't threatened. A study recently completed that considered antelope seasonal movements at Mineral Explorations's Sweetwater strip uranium mine determined that the mining operation did not hinder such movements. Another university researcher studying antelope on Red Rim contends that "predicting magnitudes of potential losses in numbers on Red Rim is an academic and indefensible exercise."

C

See response to comment No. 6BG.

D

The petitioner's allegation that reclamation will be technologically and economically infeasible seems to us a crystal-ball form of prediction. For the petitioners to allege such a theory is unfounded and lacks any sort of data base to shore it up. As the DEQ and OSM succinctly point out in the draft petition evaluation document on p. IV-15, "There is no evidence to suggest that revegetation of the Red Rim area is technologically infeasible." While it is noted that such reclamation may be difficult, it is not determined to be improbable. In fact, as discussed in the document here being commented upon, reclamation scenario 1 offers high probabilities of successful revegetation.

D

See response to comment No. 100U. Revegetation is only one aspect of the reclamation that would be performed on Red Rim should mining occur. The uncertainties of and risks to the accomplishment of reclamation are described in the response to comment No. 2B and in appendix F.

E

Another point to be made concerning this issue of reclamation concerns economics. First of all, it should be noted that if mining on Red Rim hadn't been determined to have development potential, the Department of Interior would not have identified it for future sale. Secondly, if industry in their analysis of development costs for Red Rim, which will obviously include a full analysis of reclamation costs necessary to satisfy federal and state regulations, determines it too costly to mine, it simply will not receive any bids. It seems unjustifiable to determine that reclamation on Red Rim will be technologically and

E

We agree that reclamation technologies and the economics of the demand for coal from Red Rim could change by the time the lease were offered for bidding, assuming the area is not designated unsuitable for mining. However, in accordance with Section 522 of SMCRA, once a petition alleging the technologic and economic infeasibility of reclamation of a given area has been submitted to OSM, the Secretary cannot defer to the leasing stage his determination as to whether reclamation of that area is technologically and economically feasible, since reclamation infeasibility is one of the allegations of the petition.

Please see sections IVB and IVC for discussions of the technologic and economic feasibility of reclaiming Red Rim. Section IIIB addresses the supply of and demand for petition-area coal.

economically infeasible. Reclamation techniques are continually evolving. Who is to say that when bids open on Red Rim that the technology for reclamation will not be up to the job? Who is to say that rapid changes in the coal market place may not make the economics of successful reclamation very attractive to bidders? Who really believes that the National Wildlife Federation is better prepared to comment upon the economics of a coal project as opposed to the coal mining companies? We believe that this matter should be assessed at the time of lease offering by bid.

401

Finally, we would like to discuss our local economy. It seems only fair to us that the needs of our local residents be balanced with needs of a small affected herd of antelope on Red Rim. Carbon County's economy depends heavily on coal mining, and in the past two years, we have seen a downward spiral in jobs and coal production locally. This has had a devastating impact on our economy. Additionally, many of our existing producing coal mines will be exhausted in the mid 1990's, right when Red Rim would be coming on line. As such, Red Rim would help to stabilize our local economy and population. Community facilities and services, constructed in anticipation of continual population increases in Rawlins and Carbon County, are now more than adequate to handle expected population increases from construction and production at Red Rim. The housing market is wide-open, with many more housing units available than would be necessary for Red Rim development.

F

Economic impacts at full production for Red Rim would include the following:

- $5.3 million annually in direct wages and salaries for 175 employees
- 200 additional secondary jobs
- $92,000 annually in local property taxes
- $8 million annually in State severance tax
- $3.75 million in Federal royalties

These impacts would go a long way towards offsetting revenues and jobs lost from existing projects that would be phasing out in the 1990's.

The Carbon County Economic Development Corp. is very concerned about the precedent that may be set if the Red Rim area is deemed unsuitable for surface coal mining based upon the Wildlife Federation's petition. We believe if this unsuitability designation is granted due to the pronghorn, our people will never have even a fighting chance for any other coal lease tracts in a similar situation. Nearly all parts of Carbon County are inhabited by the pronghorn; the position of the Wildlife Federation, if accepted, could result in the total collapse of the coal industry

F Thank you for your comment. Please see section IVD for a discussion of the socioeconomic impacts with and without a mine on Red Rim.

in Carbon County. With millions of tons of coal deposits available for development, we cannot take the petition lightly and will continue to support mining in areas such as Red Rim where the environmental concerns, including antelope, are so minimal.

In summary, we believe that mining on Red Rim will not reduce antelope numbers in the area over the long-term. We believe that reclamation can be accomplished in a way that will retain major characteristics of the critical winter range. We also believe that determining Red Rim to be unsuitable for mining based upon the premise that reclamation is technologically or economically infeasible is totally unjustified at this time. And finally, we are acutely aware of the downturn in our local economy, and its effect on jobs and local revenues. This county badly needs a shot in the arm, and there does not appear to be a whole lot on the horizon that will provide that for us.

In conclusion, we ask the Office of Surface Mining and the Wyoming Environmental Quality Council to deny the Wildlife Federation's petition to have the Red Rim area deemed unsuitable for surface coal mining. Thank you for this opportunity to offer these comments.

402

Sincerely,

Henry Hewitt
President

HH:lp

January 23, 1985

TESTIMONY FOR

Wyoming Environmental quality Council and Office of Surface Mining Hearing on Red Rim.

Mr. Chairman, Ladies and Gentlemen of the Panel:

My name is Sherrod France and I am a native of Rawlins, Wyoming and I have resided in Wyoming all of my life. I am employed by a local business in Rawlins and I am deeply aware of the local economic conditions in Rawlins, Carbon County and the surrounding trade areas. I am also an avid sportsman and enjoy hunting. From these viewpoints, I strongly support the position that our economy and industry is very significantly dependent upon our energy resources as a means of livelihood for residents of Carbon County and specifically Rawlins. In one way or another, every business in Rawlins is dependent upon the development of our natural resources as a source of income, employment and livelihood. It is my strong personal opinion, that in order to maintain the quality of life, education, levels of employment, public facilities, including roads and highways, recreation opportunities, medical facilities, schools, and local businesses to serve the public and our community, it is necessary to continue to be able to utilize our natural resources, specifically coal, gas, oil, and uranium. Therefore, I strongly support the leasing of lands located in the Red Rim area, southwest of Rawlins, for the purpose of coal mining and development.

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Thank you for your comment.

It is further my opinion, that these lands can and should be available for multiple use. Properly handled, these lands can and should be utilized by the mining industries and also provide adequate habitat for our wildlife. It has been shown many times over that wildlife can and will adapt to changes in environment, and that they can and will adapt to disruptions of the environment, particularly mining operations, without significant reductions in wildlife numbers. During the last decade, there were more antelope on our prairies in Carbon County than there were fifty years ago. In the last decade, there have been more mining operations in Carbon County, particularly coal and uranium, than there has been in the last fifty years.

Certainly part of this growth in the wildlife herds has been from wildlife management, but I submit that the wildlife herds have shown the ability to adapt to changes in the environment and have done so very successfully. I submit that the lands can have multiple usage which will benefit all concerned.

Regardless, whether or not, an economic condition may exist at the present time that may make development of a new coal mine feasible or not feasible, it is extremely important to our area, that the lands which hold energy resources be available for development at a future time, and not be closed off from that option. If this option were to be closed off, opportunities for maintaining a growth pattern, employment, quality of life, public facilities and the many other opportunities that are created by taxes generated from the economic use of these lands will also be lost. Our present depressed economy could be far worse that it is presently.

I again submit and strongly support that the Red Rim lands be suitable for coal leasing and development as is being discussed at this hearing. It has a major bearing on the viability of our future economy. Our energy resources belong to us as much as do the wildlife herds that roam on these lands, and these energy resources should be allowed to develop in an orderly manner providing multiple usage for industry and business as well as providing adequate habitat for the wildlife. Certainly, programs can be developed that will adequately provide for both concerns. Our economy and the well being of our residents who are dependent on local business for their livelihoods can not be ignored. These lands cannot afford to be closed off from development without a major impact on our economy. Our energy resources are the life lines of our community and for those of us who live here and wish to continue to do so, we must protect what provides us a living so that Rawlins will have a viable economy. I ask that you deny the petition to declare Red Rim unsuitable for mining. Thank you.

Respectfully submitted,

Sherrod W. France
Occupation: Bank President

404

4 February 1985

Mr. John Crowe
Wyoming Environmental Quality Council
Emerson Building, Room 304
2001 Capitol Avenue
Cheyenne, Wyoming 82002

RE: Unsuitability Petition for Red Rim Draft Petition Evaluation Document/Environmental Impact Statement.

Dear Mr. Crowe:

Thank you for the opportunity to comment on the Red Rim Draft Petition Evaluation Document/Environmental Impact Statement (PED). My enclosed comments supplement my oral testimony from the 23 Jan. 1985 Hearing in Rawlins, Wyoming. These written comments address four relevent areas to the impending decision. The first issue is that a thorough, integrated analysis of the complex interaction between topography, soils, climate and vegetation in relation to pronghorn winter range requirements and reclamation potential is lacking, and as such the PED underestimates the magnitude of the problems facing reclamation of these sites, particularly with regards to meeting pronghorn habitat needs. I do not share the view that the Petition's Allegation 2 is frivolous. The second area addresses results of the University of Wyoming Red Rim pronghorn study in which I participated. Some statements in the PED referencing the study need clarification. In the third area, I discuss why the BLM's No Surface Occupancy Zones of 6 Oct. 1981 (Alternative C1a) and 21 May 1982 are grossly inadequate, weaknesses in BLM's mitigation stipulations and alternative stipulations if the Petition is denied (Alternative B) or that only part of the area is designated as unsuitable (Alternative C). My last section of comments addresses other specific statements in the PED.

405

I share the view of some other scientists and land managers that the success of reclamation should be evaluated on the ability of the land to support desired post-mine land uses, and not based solely on conventional performance standards. Should the Council's decision not preclude surface mining on the Red Rim winter range, I strongly urge the Council to recognize crucial pronghorn winter range as a major post-mine land use, to stipulate conditions to minimize disturbance to important, fragile areas on the winter range, as well as reclaim disturbed areas for crucial winter range.

These comments are based on my interpretation of data, the technical literature and my opinions. Hopefully, my comments will be useful to the Wyoming Environmental Council in making an informed, objective decision in the best interest of present and future citizens of Wyoming.

Sincerely,

Richard Guenzel
162½ North 9th St.
Laramie, Wyoming 82070

COMMENTS BY RICHARD J. GUENZEL ON THE

DRAFT RED RIM UNSUITABILITY PETITION EVALUATION DOCUMENT/ENVIRONMENTAL

IMPACT STATEMENT

INTRODUCTION

Having reviewed the Draft Red Rim, Wyoming, Petition Evaluation Document/ Environmental Impact Statement (hereafter referred to as the PED), I offer the following comments. These comments are my interpretations and opinions based on my analyses, the technical literature and discussions with experts in related fields. In some cases, my interpretations may differ from those of others working on these or related studies.

I believe that the PED has underestimated the problems associated with reclamation in the Red Rim area, and that pronghorn/winter range relations were not well understood, particularly with regards to the interaction of topography, climate, soils and vegetation. The problem appears to be in part one of scale. The size and shape of topographic features have a profound effect on moderating snow distributions, wind velocities, and access to forage. These features also impose much more difficult problems for reclamation than those anticipated in the PED. Because the snow/topography/pronghorn issues pervade the Document, the first section of my comments addresses the importance of diverse topography on the Red Rim winter range to pronghorn survival during winter and the difficulties these impose on attempts to restore or approximate such habitats. The next section comments on results of the University of Wyoming Red Rim pronghorn study. Some statements in the PED referring to the study need clarification. My third comment section discusses why the BLM's mitigation and No Surface Occupancy Zones (see Appendices I and J) are grossly inadequate. The last section comments on other specific statements in the PED.

In order to make an informed, objective decision, the Wyoming Environmental Quality Council (EQC), the Wyoming Department of Environmental Quality (DEQ), and the Office of Surface Mining Reclamation and Enforcement (OSM) need to fully understand the magnitude of the problems related to the impacts of mining on the Red Rim pronghorn winter range and the potential for mitigation. In the event that the Petition for the entire area were denied, such knowledge could lead to the identification of proper areas to be excluded from surface mining if Alternative C were adopted, and in formulating appropriate permit stipulations for areas made available for surface mining.

The Surface Mining Control and Reclamation Act of 1977 explicitly recognizes wildlife habitat as a legitimate land use. Crucial pronghorn winter range is the most important current land use on Red Rim. If areas on this winter range are made available for surface mining, I strongly urge that crucial pronghorn winter range be stipulated as a major post-mine land use. I disagree with the denial of Petition Allegation 2 (reclamation infeasibility) as frivolous (see Appendix B of the PED). The Wyoming Environmental Quality Act clearly states the powers of the administrator of the land quality division (Sec. 35-11-403). The EQC, not the administrator, establishes the standards on which to evaluate proposed land uses (Sec. 35-11-402). Reclamation evaluations in the PED focus primarily upon revegetation (notably shrubs) and, even for Reclamation Scenario 1 (restoration of winter range conditions), do not adequately consider the simultaneous constraints of the appropriate topography and its influence on soil depth, stabilization, soil development, infiltration, evapotranspiration, and moderation of climatic factors. I feel that the success or feasibility of reclamation must be based in part on the ability of the area to support the proposed post-mine land use following disturbance, and not solely on the usual performance standards. Pronghorn winter range does not preclude all other land uses.

I. THE IMPORTANCE OF TOPOGRAPHY TO PRONGHORN WINTER RANGE USE, SNOW DISTRIBUTIONS AND RECLAMATION POTENTIAL.

Red Rim's importance as a critical winter range for pronghorns is directly related to its topographic configuration which provides windswept areas available for feeding, warmer southerly aspects due to higher solar insolation, refuge from harsh winds in leeward areas of ridges, variations in the size of sagebrush plants available at varying snow depths, and access to all these components during unpredictable winter weather conditions. The size, orientation and location of landforms are highly important as these influence wind patterns and ultimately snow distributions. Pronghorns use these landforms to help minimize exposure and subsequent energy losses. In fact, these more favorable microclimates resulting from topographic variations may be as important to pronghorn survival as the nutritional quality of browse. Carrying capacity estimates based solely on the abundance of vegetation may not be appropriate on some pronghorn winter ranges (see Wallmo et al. 1977).

Although snow drifting is a very complex process, knowledge of certain fundamental concepts will help explain the importance of topography on pronghorn winter ranges. It is quite apparent that the PED authors did not fully recognize these principles and their importance to reclamation on the Red Rim winter range. For any given topographic catchment, snow may be transported from some distance upwind of the catchment known as the contributing distance (Tabler 1975a). For a given set of environmental conditions, the wind has a finite capacity to pick up and transport snow particles. Once this air is saturated with snow, it can no longer pick up additional snow particles until conditions change, as when snow is deposited behind an obstruction. Once snow is trapped in a catchment, the air generally can be resaturated with snow and erode snow from downwind areas as it resaturates. This process contributes to the existence of windswept ridges. At Red Rim, winds predominantly blow from the west-southwest. Ridges with southwesterly aspects become bare due to melting as well as wind. Windswept ridges provide lower snow depths and access to exposed vegetation for pronghorns. These sites are drier and have shallower soils. Plants on these areas are lower, sparsely distributed and less productive relative to plants on other sites. However, the low profile contributes to smoother airflow over the ridge, enabling wind to erode snow away. Larger shrubs drift in more snow and can reduce their availability to pronghorns. The stronger winds at these sites result in a great deal of exposure so pronghorns generally must seek out other areas for protection from the wind.

Snowdrifts form on the leeward sides of topographic catchments. For any given topographic feature, there is a maximum amount of snow that can be trapped due to wind transport, known as the equilibrium capacity (Tabler 1975b). As a snowdrift is forming, it reaches its maximum depth before extending to its maximum length downwind. Because the amount of blowing snow is finite, some large topographic features have such large equilibrium capacities that these equilibrium capacities will never be met. These kinds of landforms provide areas where pronghorns may escape harsh winds by moving into the calmer air pockets in the lee of the ridges

which do not fill in with snow. The draws and ridges on Red Rim form many such features which are highly important to pronghorn survival during winter. Figure 1 illustrates the influence of topography on snowdrifting and suitability for pronghorns. The size of the ridge required to form snowdrifts that do not reach their equilibrium capacities is dependent on the amount of snow that may be transported. Figure 2 shows how topography influences access to adjacent windswept and wind-protected areas.

A

The PED claims that "Information is not available to determine how significant the channels are to snow accumulation, overall snow hydrology, and soil moisture of the petition area" (p. IV-25, paragraph 3). While snow drifting is a complicated process, much of this information is available or the technology exists to estimate these (see Schmidt 1972, Tabler 1975a & b, Tabler and Jairell 1980, Gray and Male 1981, Sturges and Tabler 1981). Tabler (1975b) developed an empirical equation to predict the equilibrium snowdrift slopes for topographic catchments. Using his model, I estimated equilibrium drift slopes for several size and shape combinations of topography in relation to a constant volume of snow. Figures 3a, 3b, and 3c show some of these results from the simulations. If the heigths of ridges depicted in these figures were scaled to ridge sizes on Red Rim, the volume of snow depicted might be realistic. In order to provide windswept slopes with leeward drifts well below equilibrium capacity so as to provide for refugia for pronghorns to escape high winds, steeper slopes (greater than 20%) were generally required. The PED notes that slopes as steep as these would be difficult to achieve (pp.IV-32, 45; pp. F-5, 6). If mining resulted in generally lowered ridges, the slopes would have to be much steeper to retain the same volume of snow, making it most unlikely that slopes could be reconstructed at lower gradients and still provide adequate range conditions (pp. F-5, 6).

B

Reclaiming such topography imposes several problems which the PED does not adequately consider. Reclamation scenarios do not simultaneously consider these constraints in sufficient detail. Reclamation of the drier windward slopes is hindered by increased potential evapotranspiration (Toy 1979) and runoff on steep slopes which are relatively difficult to stabilize. The size and density of shrubs would have to be controlled on windswept aspects to maintain the smooth airflow conducive to eroding snow over the crest of the ridge. More vigorous shrubs (p. F-2) would drift in as did transplanted shrubs on the RME study site. Soil depths would have to be limited on these sites to prevent establishment of larger shrubs that might become unavailable due to drifting (see Redente et al. 1982 for a discussion of soil depth in relation to shrub establishment). The large leeward drifts would promote erosion due to the steep slopes, particularly where erosion-resistent strata had been removed during mining.

C

Contour furrows, terracing and other techniques commonly employed on reclamation sites to provide water for revegetation through snow harvesting would not be adequate to control snow for pronghorn habitat needs. The amount of snow that would have to be trapped on a given site would be too large and would not provide protection from winds. Indeed, the general smoothing of reclaimed lands under Reclamation Scenario 3 could increase the effective contributing distance resulting in larger drifts in downwind draws left undisturbed for pronghorn use, potentially precluding access to these areas. Also, with surface roughness reduced, the potential also exists that previously windswept areas downwind may retain more snow due to saturation of air with snow, inhibiting erosion of snow from these sites. Unfortunately, sufficient snow may not be able to be drifted out on reduced gradients following mining and still provide adequate areas for pronghorns. The steep, wind-exposed ridges are very important to pronghorns wintering on Red Rim and may not be restorable if mined. This information, however, may help locate areas of critical importance to pronghorns for exclusion if the petition is denied. Field measurements and additional modeling would be necessary to adequately devise

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A

Section IVC has been revised to indicate that methods for estimating snow-accumulation depths and pattern and overall snow hydrology do exist. Modeling of the performance of snow over the existing landscape and over any proposed postmining landscapes should be part of the systematic design of any postmining topographic configuration. As you point out elsewhere in your letter, snow accumulation (amount and pattern) is one of several important components determining the multifaceted character of critical winter range. These components must be considered together in the context of postmining land use to determine the feasibility of a given landscape design.

B

To revegetate the steep windblown slopes with a Wyoming big sagebrush-dominated plant community would probably be the most difficult reclamation task on Red Rim. Surface erosion and mass-stability failure would make these slopes hard to stabilize. However, even though the slopes are more xeric than surrounding terrain, Wyoming big sagebrush occurs naturally on them; therefore, their reclamation using Wyoming big sagebrush is at least possible. Wyoming big sagebrush is generally confined to paralithic bedrock within 20 inches of the surface, a condition that may be impossible to recreate or simulate in the reclaimed landscape at Red Rim. The research and baseline studies identified in revised appendix F would contribute to the resolution of these issues.

The size of Wyoming big sagebrush may be controlled by the environment in which it is planted, the genetic characteristics of the taxon, or both. The study of the various Artemesia species and subspecies and of their ecological amplitudes would assist in defining some of these characteristics, which in turn could be integrated into the planning/mitigation effort. The impact of added roughness could act as you suggest, but onsite data are not available to quantitatively define such potential impacts. As indicated in appendix F, reclamation scenario 1, onsite data would be necessary in developing a reclamation plan to mitigate as much as possible the potential impact of the development on pronghorn critical winter range.

C

See response to comment No. 100C.

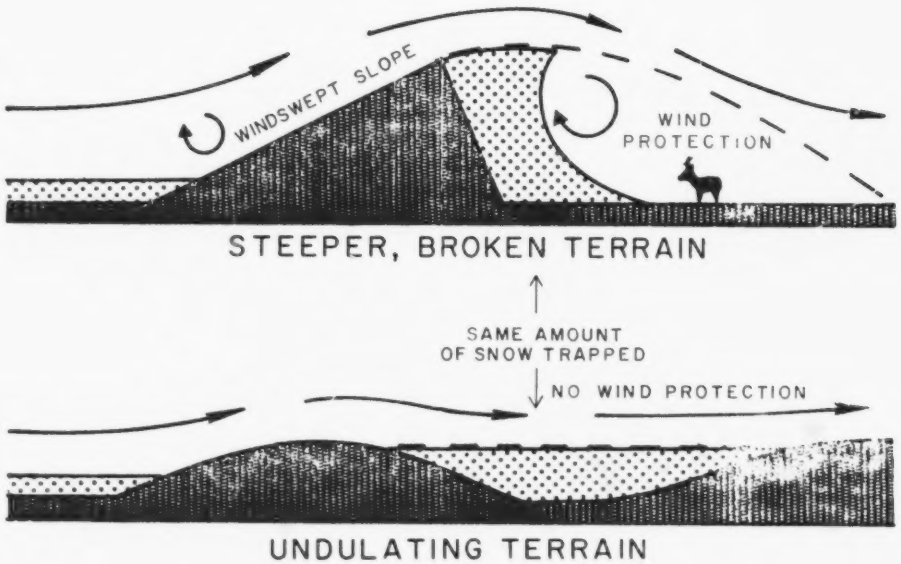


Figure 1. The influence of topography on winter range suitability for pronghorns. Steep, broken terrain as shown in the upper diagram provides relatively snow-free windswept sites, yet also provides shelter from harsh winds because the equilibrium capacity (dashed lines) is sufficiently large. Lower, undulating terrain as shown in the lower illustration does not provide wind protection although the same amount of snow is trapped (broad arrows indicate wind patterns).

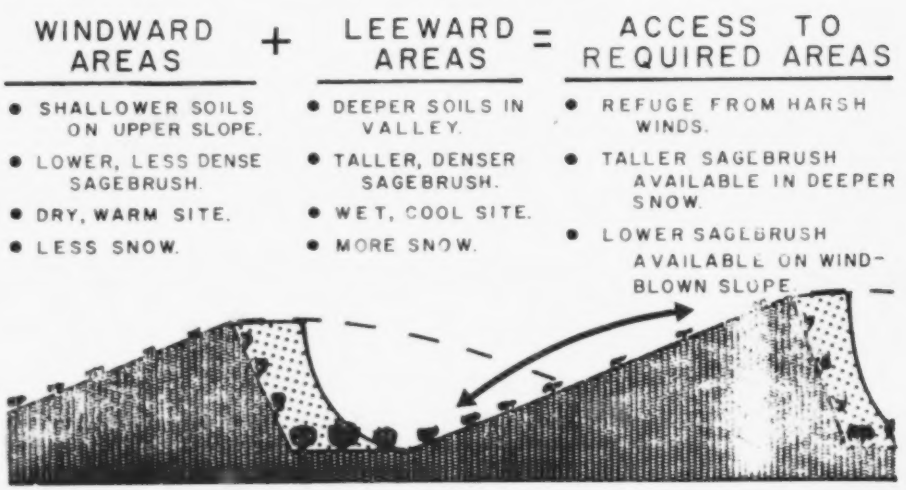


Figure 2. Ecological conditions associated with diverse topography providing pronghorns with access to adjacent wind-blown and wind-protected areas. Note the reduced downwind drift of the second ridge due to a shorter contributing distance (dashed line indicates the equilibrium capacity for the ridge).

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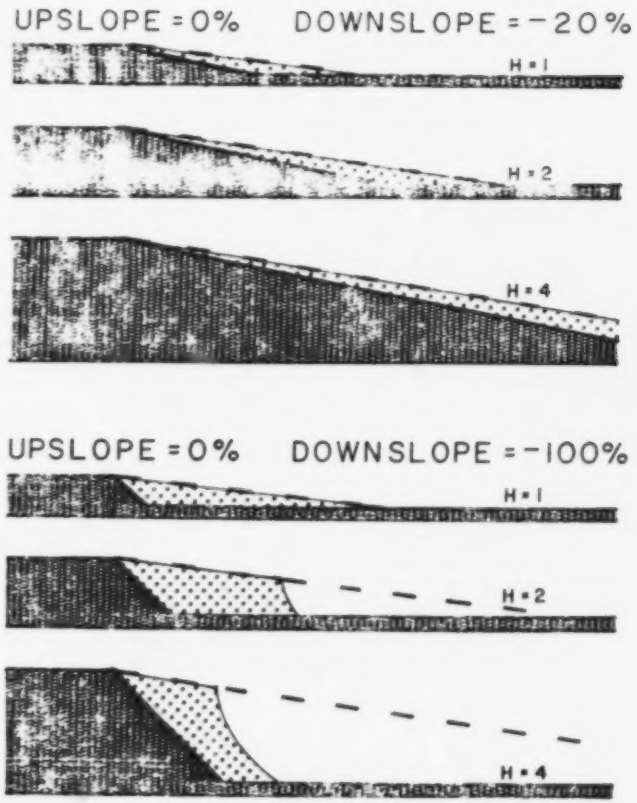


Figure 3a. Simulation results indicating the influence of the size and shape of topographic catchments on snowdrift formation for a fixed volume of snow. Dashed lines represent the predicted equilibrium slopes for the catchments (Tabler 1975b). H indicates the height factor. Note that only large catchments would provide adequate wind shelter with shallow upslopes. If the height of a ridge were reduced following mining, these predict steeper slopes would be required to store the same volume of snow and still provide some wind protection. In narrow draws, such lowered ridges could fill in with snow, preventing pronghorn use (continued).

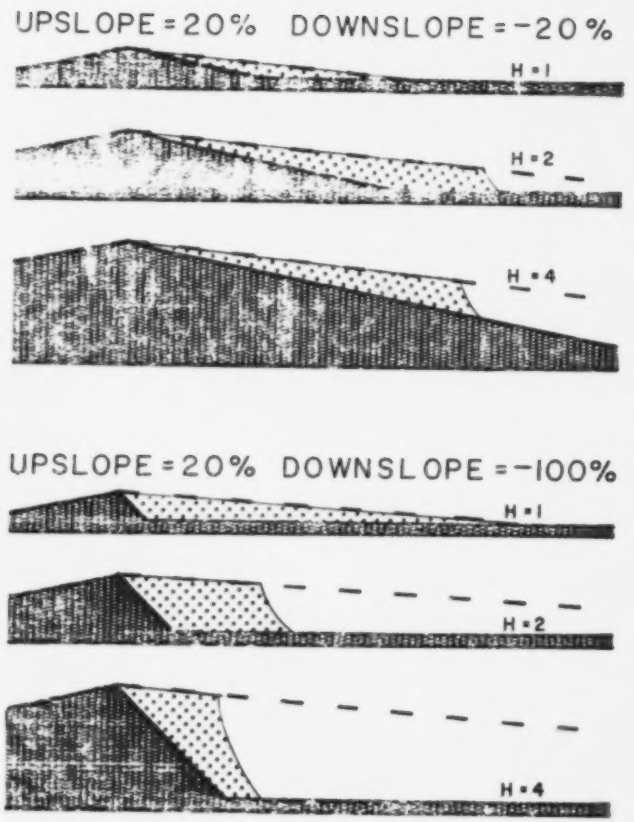


Figure 3b. (continued).

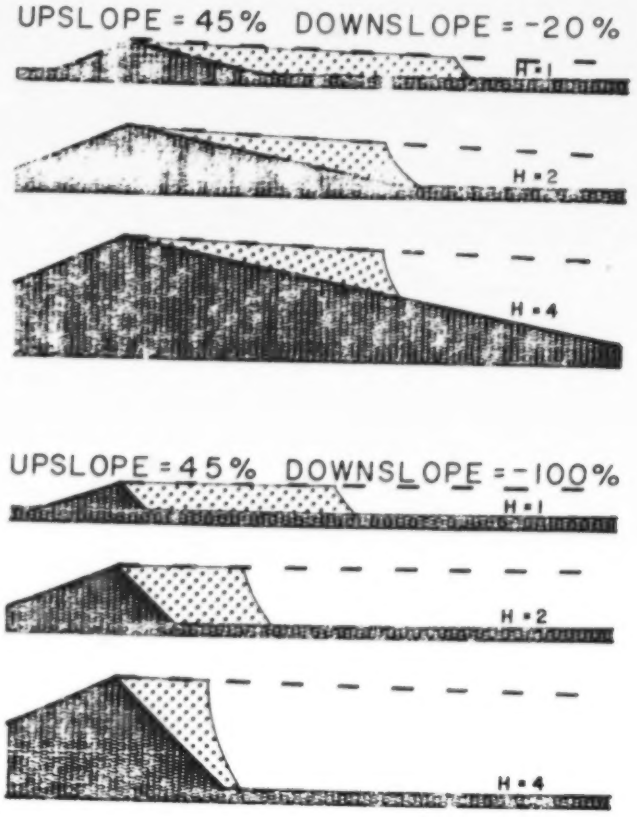


Figure 3c. (continued).

mine and reclamation plans that minimize disturbance to crucial landforms and reclaim areas to meet winter pronghorn habitat requirements. Reclamation for crucial winter range conditions requires restoration of site conditions which are less conducive to reclamation success. Current reclamation practices try to avoid recontouring for such sites due to the difficulty of stabilizing and re-establishing vegetative cover.

## II. UNIVERSITY OF WYOMING RED RIM PRONGHORN STUDY

The University of Wyoming conducted research on pronghorns in the Red Rim area from Fall of 1979 through Spring of 1982. Of the three winters studied, none were critical. The 1979-80 winter had above normal snowfall, the 1980-81 winter was one of the mildest on record, and the 1981-82 winter was intermediate between the two previous winters. Even in mild winters, however, periods of severe weather occur, and some of those observations are relevent to more critical periods. The study consisted of two parts: an extensive study of movements and distributions principally involving observations on 40 radio-collared and 139 neckbanded pronghorns (begun in 1979); and an intensive study of distributions and habitat use on the Red Rim winter range (started in 1980). In 1979, none of the pronghorns marked were trapped on the Red Rim winter range, but in adjacent areas. However, some of these animals moved on to Red Rim and later moved to other areas. None of these animals left the Red Rim winter range until after conditions had moderated. Maps presented in the study's final report (Irwin et. al. 1984) showing locations of where pronghorns wintered during the 1979-80 winter merely identify geographic units and do not imply that all areas within these were equally available at all times. In most cases, the areas actually available to pronghorns were very limited. LANDSAT imagery suggests that many of these areas are not available in severe winters because these lack the necessary sagebrush and topographic conditions during heavy snow periods. Even on Red Rim, different areas were used under different conditions. Pronghorns did not distribute themselves uniformly over the entire winter range but exhibited a more dynamic pattern varying with conditions.

D

Movements data suggest that the areas surrounding Red Rim act as staging areas but Red Rim is a critical winter range with more animals moving on to the winter range as conditions worsen. Movements of marked pronghorns on the Red Rim winter range in all years of the study showed considerable use of draws and associated terrain , crossing over many of the known recoverable coal deposits. Figures 4 - 6 show representative patterns on Red Rim for each of the three winters. These suggest that the effective disturbance of mining to pronghorns could exceed the actual physical area disturbed by hindering access to particular areas.

D Section IVB recognizes that spoil piles, pits, and fences would alter the accessibility of Red Rim to pronghorn.

E

The areas delineated in Figure IV-1 of the PED are not as internally homogeneous as some might think as these are subjectively delineated. Important areas also occur in draws and ridges in the southern part of the Central region (secs. 13, 14, 23 and 24 of T 20 N, R 90 W). The statement that the Separation Creek and Red Rim study areas support 75% of the winter pronghorn population is somewhat misleading (see PED p. IV-17 and p. V-9) because marked animals showed that other areas on the winter range were also used heavily. Because these are proportions of total number of animals observed over several instantaneous counting periods, moderate weather may be overrepresented whereas some other areas important under harsher conditions may be underrepresented. Areas within these regions, however contain many important habitat components. The PED statements suggest that animal distributions are fairly fixed.

E The purpose of the discussion in section IVB regarding pronghorn distribution within the critical winter range is to explain that, in general, more pronghorn concentrate in the Separation Creek and Red Rim subareas of Irwin and others (1984) study area. This fact disputes claims that every acre within the critical winter range, which the study area includes, has equal value for wintering pronghorn. The PED/EIS neither states nor implies that pronghorn distributions are fixed. See section IIA for a discussion of pronghorn distribution in relation to habitat suitability and availability.

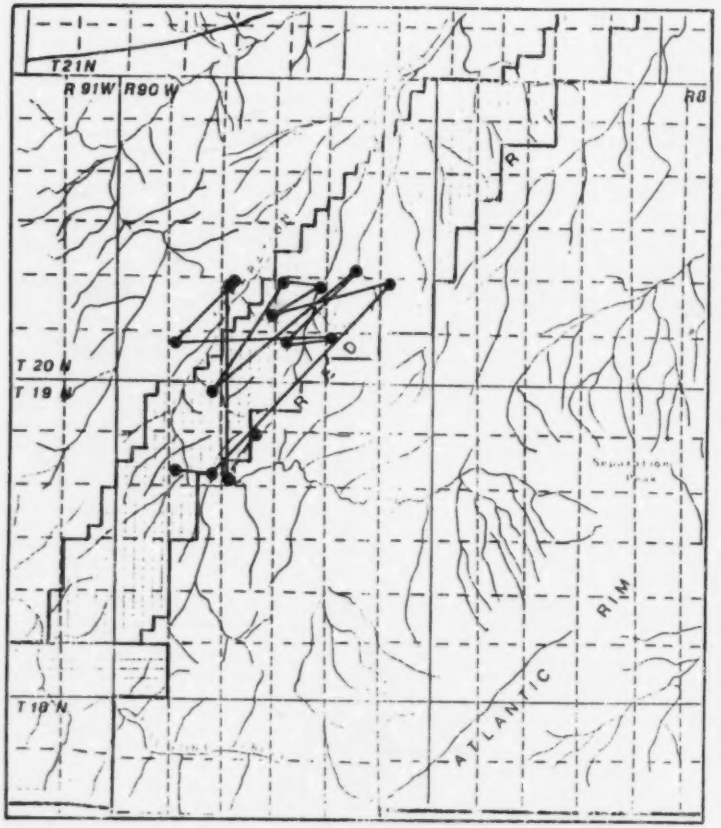


Figure 4. Movements of radioed buck no. 14 on the Red Rim winter range during the 1979-80 winter prior to transmitter failure. Note the locations associated with draws and the movement patterns across the winter range complex.

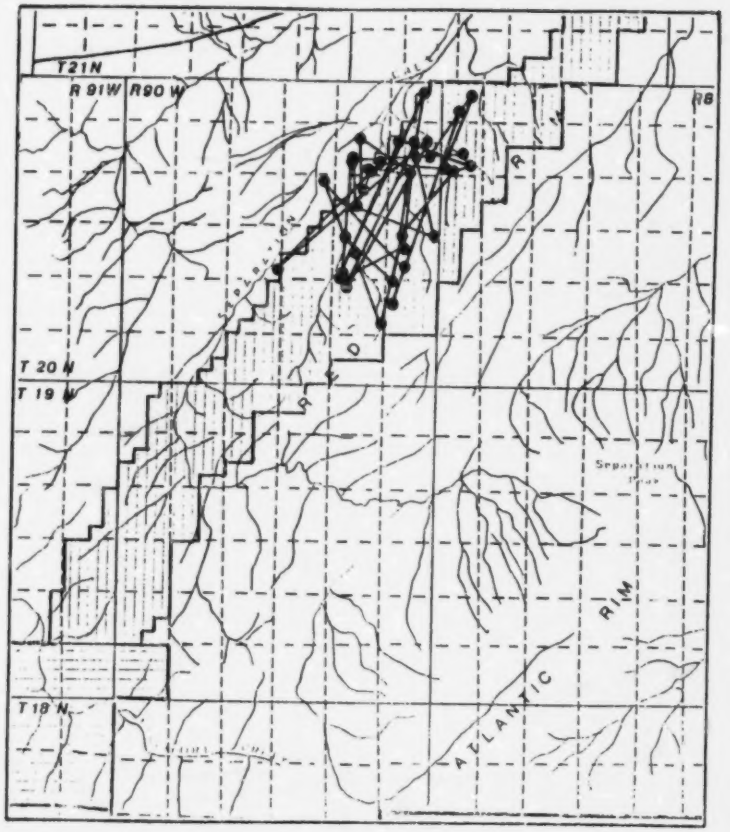


Figure 5. Movements of radioed doe no. 40 on the Red Rim winter range during the 1980-81 winter. Note the movements across the winter range complex and the relation to draws.

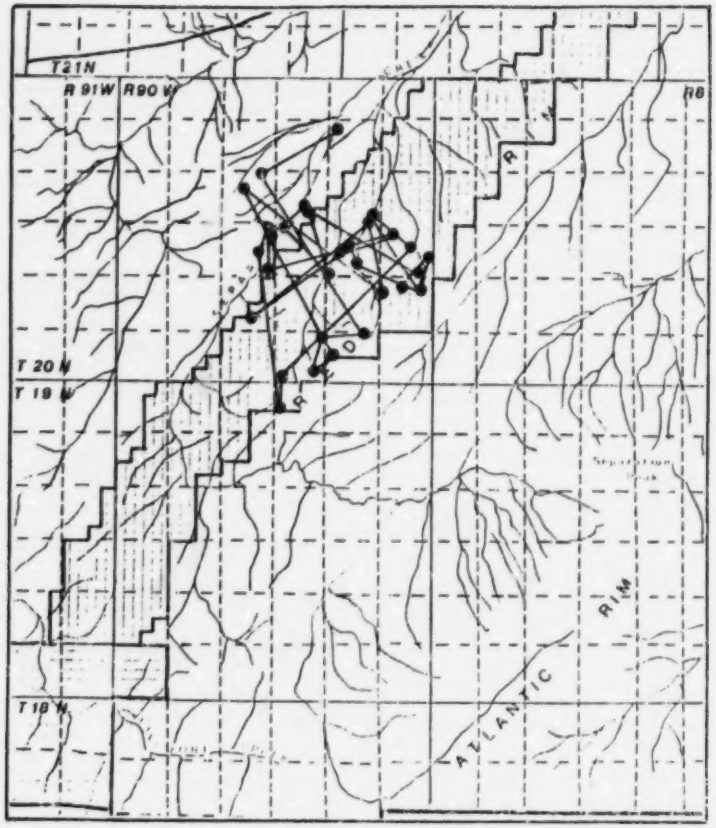


Figure 6. Movements of radioed doe no. 39 on the Red Rim winter range during the 1981-82 winter. Note the association of locations with draws and movements across the winter range complex.

F Movements data also indicate that some of the pronghorns using Red Rim in winter came from the Iron Springs Herd Unit. The potential exists that additional pronghorns from outside the Baggs Herd Unit may also rely on Red Rim during some winters.

F See response to comment No. 6V. Section IIA has been revised.

III. INADEQUACIES IN THE BLM'S NO SURFACE OCCUPANCY ZONE AND MITIGATION STIPULATIONS.

G In the PED, Alternative Cla provides for the designation of the BLM's 6 Oct. 1981 No Surface Occupancy Area as unsuitable. The BLM has also proposed another delineation for No Surface Occupancy (21 May 1982) on the basis that these areas include the most critical areas on the Red Rim winter range for pronghorns (p. IV-17, p. V-8, Appendices I and J, and Plate 1). In my opinion these areas are grossly inadequate although they do contain some portions of important habitats. As discussed in the first two sections, topography and observed use patterns suggest other areas on the winter range may be more important. Examination of the topography as shown on Plate 1 shows less topographic diversity than areas to the west, particularly lacking are those prominent features which provide for the snow moderation and still allow protection from winds. Shallower valleys in the upper reaches are likely to drift in with too much snow and this zone has less protection from the wind than those draws running more perpendicular to the wind in the middle regions of the winter range. Access to lower lying areas which melt off earlier is also restricted. The proposed No Surface Occupancy Zones will not necessarilly blow free of snow earlier than other areas. Usually the most southwesterly and westerly ridges blow free first.

It is my understanding that the No Surface Occupancy Area was delineated after other areas were restricted from being included, and as such does not represent the most critical areas. In addition, antelope-proof fencing bisects portions of the No Surface Occupancy areas, restricting movements on those areas.

G Thank you for your comment. See responses to comment Nos. 100B, 111L, and 113C.

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H The mitigation stipulations proposed by the BLM are predicated on the assumption that the No Surface Occupancy Zone includes the most critical part of the winter range (Appendix I-1, 2). In these stipulations, insufficient consideration is given to the snow/topography interactions, and carrying capacity estimates that ignore the importance of microclimates which aid in minimizing energy losses may be misleading. I suggest that stipulations be added that require modeling snow drift patterns across the winter range in relation to alternative mining and reclamation plans since factors such as drift capacity have been previously ignored. I personally believe that steep slopes with appropriate snow shedding characteristics should not be mined unless reclamation to restore these areas can be demonstrated on similar sites elsewhere. Stipulations should include monitoring fairly intensively the pronghorn population on Red Rim and the other winter ranges in at least the Baggs Herd Unit, not just on the mine site.

H Thank you for your comment.

IV. ADDITIONAL COMMENTS.

I The relative frequency plots of aspect and gradient (p.IV-27-29) are somewhat misleading. The absolute availability of some slope/aspect combinations may be much more important, whereas, relative frequencies on altered terrain may not reflect the significance of the change due to lowered relief.

I Table IV-4 has been added to section IVC to summarize aspect and gradient data.

J The proposal to reorient ridges (p. IV-30) would likely increase potential evapotranspiration and other problems for reclamation and steep slopes would still be likely to be necessary. In addition, diverse topography provides a buffer against periods of atypical storm and drift conditions which a more uniform

J See response to comment No. 118A. The soil-moisture regime extant in the Red Rim area is dominated by snow accumulation and spring and early summer rainfall (Frickel and others, 1981). Changing topographic components (e.g., aspect and gradient) or other components (e.g., soil thickness and distribution and vegetation type and cover) may indeed change the area's ability to provide both refuge during severe winter storms and windswept areas for browsing for pronghorn. A comprehensive analysis of any mining proposal should determine the extent to which postmining topography would affect these components.

pattern of ridges might not provide.

K The various pre- and post-mining topographic features presented in Figures IV-6 through IV-16 should be analyzed with respect to potential to drift snow. Methods to do such an anaysis are contained in references in the first section of my comments.

L The reclamation scenarios described in Appendix F of the PED emphasize re-vegetation and do not adequately address the joint problems when associated with soils, topography and antelope use. The PED infers that reclamation scenario 1 does not provide multiple use benefits although existing land uses include more than wildlife habitat. The evaluation of reclamation success or feasibility should include an analysis of the ability to support the proposed post mine land uses. All three reclamation scenarios have the potential to alter snow drifting patterns, as actual restoration of the winter range under scenario 1 is not likely.

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K See response to comment No. 118A.

L Appendix F has been revised to emphasize that efforts to plan the reclamation of all resources disturbed by mining at Red Rim would have to be integrated. The postmining land use under both reclamation scenarios 1 and 3 would be multiple use, for livestock and wildlife. The emphasis of reclamation under reclamation scenario 1 would be to restore pronghorn critical winter habitat. See response to comment No. 6AH. We agree that reclamation under all three reclamation scenarios could alter snow drifting patterns.

My name is Craig Cernak, from Cheyenne, and I'm here as a concerned sportsman and Big Game Outfitter of this great state of Wyoming. I'd like to mention that I have a B.S. degree in biology as well as a Masters Degree in Wildlife Management from the University of Wyoming in 1977.

Many aspects of Red Rim have been discussed here today and I want to make it known that I am not opposed to mining or any other sound industrial development in Wyoming. However, the outfitting industry has not been considered in this issue and I'd like to bring up a few points.

First, I'm acutely aware of the importance of "critical" wintering habitat to any species and in this case a large portion of the Baggs antelope herd. Myself as an outfitter cannot withstand losses of this type of habitat and expect to continue hunting and guiding hunters for antelope in the future. Presently, antelope is the one specie of big game I can nearly assure a hunter he'll be able to get a license for (and thus nearly assure myself a client). From testimonies heard this morning we can say that a destruction of the majority of the critical wintering range would result in a loss of 1500 to 2000 animals — that's the first year! This represents a reduction of some 500 licenses for harvestable antelope to the sportsmen. Take that a step further and think about the loss over a 40 to 65 yr. period and we're talking about a loss of well over 25,000 opportunities to hunt antelope! I think you can see the direct detrimental effect this would have on the outfitting industry in that area. A

Secondly, I understand that there are numerous leases in the Rawlins area that could be developed and mined without the loss of such critical habitat. And, with the question of the marketability of coal even in the Hanna area currently I can't understand why one would want to mine Red Rim's coal. Economics doesn't seem to dictate it and there's no justification for the loss of such important habitat.

Finally, I'd like to address the question of Red Rim's "value". As talked about all day today it's hard to put a value on wildlife. How do you put a value on the esthetics of the unscathed landscape that exists there now? Many of the hunters I guide comment on the beauty of such vast areas teaming with antelope and other forms of wildlife. What's that worth?

There has been a lot of "ifs" brought up in this issue. One of them being If the area should be mined could it ever be reclaimed to its original status. This is the kind of question that there has to be absolute answers to. I know there's been one thing absolutely established here today and that is, the antelope, in order to survive in that area, NEED Red Rim and its critical habitat. Its loss is to the detriment of the outfitting industry and resident hunter and wildlife observer as well. There have been no other absolute needs established with data and I have to support the

A See responses to comment Nos. 100R and 111H, which address estimated pronghorn losses owing to mining. See section IVB for a discussion of the potential impacts of mining and reclamation on hunting opportunities.

## B. PUBLIC-HEARING TESTIMONY

**ED STRADER**

It seems to me that the critical issue this Council has been asked to address is obviously
12/2 whether -- whether this tract should be declared unsuitable for mining and I guess I feel like it really wouldn't be a very difficult decision for me if I sat on this Council because I do not think that it has been demonstrated that this area can be reclaimed and I do think that there doesn't seem to be a market for this coal at this point in time and it does seem that if there is a market for this coal at this point in time or at a point in time in the future that the designation of unsuitability could be reassessed, and I think that this loss of this antelope herd would not be very favorably viewed by the hunters in Wyoming and therefore it -- and it all seems pretty clear to me that we are probably going to lose a pretty substantial amount of this antelope herd if this area is mined.

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Thank you for your comment.

I also might just say that when I talk in the area of business and society and basically what you're talking about is what's -- what's for the greatest public good, and it seems to me that that's what you're trying to assess is what's the greatest public good and you talk about the marginal social benefit

versus the marginal social cost and that does not always equate with the marginal private benefit and the marginal private cost and it's highly likely the Mr. Lawrence and Rocky Mountain Energy will have some losses and perhaps those losses could be mitigated by an exchange of the coal. Obviously that's not something that's within the province of this Council, but it is a way that those private losses could be mitigated, but it seems to me that -- that the public would like to maintain that critical winter range and that there probably is going to be some substantial damage to that critical winter range if this area is mined and that therefore, on the basis of the knowledge that we have now, that area probably should be designated as unsuitable for mining. Thank you.

**JOHN WHITEHEAD**

MR. WHITEHEAD: Mr. Chairman and members of the Council and distinguished guests, I'm John Whitehead, City Councilman for Rawilins. We welcome you to Rawlins and hope you will return and visit us under better circumstances. I have a statement from the City of Rawlins on the Red Rim mining plan. It is a request to the City of Rawlins that the Office of Surface Mining, the Bureau of Land Management and the Department of Environmental Quality deny the Wyoming Wildlife Federation's petition to have the Red Rim area deemed unsuitable for surface coal mining. 423

For several years the City of Rawlins has pursued an agressive capital investment plan to insure that it's infa-structure was in good shape to handle the expected growth from mining activities in Carbon County. Also the City Council has adopted economic development as one of it's major themes. During 1985 economic development activities are generally perceived as going into another state and trying to lure business or industry from that state to ours to create new jobs.

The most likely scenario of development in any state is you take that state's resources and use them

Thank you for your comment.

to generate income and jobs. One of the greatest resources that the State of Wyoming has, as well as Carbon County, is coal.

For this reason the City of Rawlins feels that the mining of coal is important to it's vitality and economic growth, both now and in the future. Many coal leases have been discussed south of Rawlins. How those leases should be developed will affect Rawlins and Carbon County.

It is our position that the mining pattern should commence at the north and move towards the south in a logical and sequential manner.

This will insure that the construction population and permanent work force will find adequate housing, water, sewer and other facilities in Rawlins rather than imposing a significant impact on other communities in the State. In reference to structure improvements that have been made within the last several years to accommodate growth are completion of the sewer treatment plant, designed to accommodate a population of approximately 25,000 people, design and construction of 6,000,000 gallons of water a day treatment plant but easily expandable to 10,000,000 gallons a day, excuse me, or enough treated water to handle a population of 20 to 25,000 people.

Within the last four years the City has completely rennovated three parks, constructed three new parks to handle the recreation and open space needs of a growing population.

Also at this time housing within the County and particularly within the City can accommodate the growth invisioned by this project.

The City of Rawlins and Carbon County has experienced periods of unemployment and economic hardships beginning in -- early in 1981 with the closing of several mines and then in again 1982 with the shutdown of the Union 76 Uranium Processing Plant which has had an accumulating affect on the local population and mining community. We view surface mining at Red Rim to be an important resource development to provide jobs for those currently unemployed and to provide employment for young people in our community graduating from high school each year as well as to infuse new dollars into an ailing local economy. Thank you.

**BRENT D. BERGEN**

MR. BERGEN: Thank you for this opportunity. My name is Brent Bergen. I'm President of the Wyoming Wildlife Federation. The Wyoming Wildlife Federation is the oldest and largest conservational organization in the State of Wyoming. We represent sportsmen, fishermen, outdoorsmen, trappers, people that genuinely have an interest and a love for the outdoors in the State of Wyoming. Uhm, we received a tremendous amount of letters, phone calls, telegrams from individuals throughout the State and country relative to the issue, as you might be aware.

We will submit a composit of these in written testimony. The people of this country are waiting to see what your judgement will be relative to whether or not there will be a place officially set aside for wildlife; more particularly here on Red Rim with the antelope.

The Wyoming Wildlife Federation is not opposed to development, per se. If you take the percentages that we talked about earlier, this ten percent/90 percent, the idea there was that ten percent in this case being Red Rim is critical winter habitat. There could be, in situations, summer range which would be considered critical summer range; whatever is critical to that animal's survival.

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Thank you for your comment.

Out of that total 100 percent of land area ten percent of that constituting Red Rim is critical to that animal's survival. I would say theoretically that we would probably take the other, say, out of that 90 percent take 80 percent of that and say that we would have no problem with development of that 80 percent because it isn't critical to that animal's survival.

With this idea in mind, it's obvious why we're so concerned about this.

Uhm, speaking relative to the topography of Red Rim, I feel that it is very unique. I'm a pilot, do quite a bit of flying and I've flown over Red Rim many, many times and to see it from the air it's very obvious that it is very uniquely special, that there are miles and miles, endless miles of area, flat area without much vegetation that these animals move from onto Red Rim. The question that I would probably pose, that doesn't seem to be answered here, irregardless of the percentages is where the antelope off of Red Rim will go.

Irregardless of percentage of mining, these antelope move here or move onto the Rim historically by habit, by virtue of their parents and back in their posterity of the antelope their memory tells them to move there.

If it is disturbed to whatever degree, by the time any decision is made on the antelope's part to try to move anywhere else, very likely it will be too late. I understand this happened with a number of the antelope last winter, trying to move toward Muddy Gap.

Uhm, as far as the reclamation, it seems that it's been brought out here that there is an opportunity ongoing next year or the year after of five years from now or ten years from now to review this decision you make. With this idea in mind, I think if there's any question or doubt in your minds whatsoever as to whether, in fact, it can be reclaimed, whether or not this is detrimental to the antelope in the winter habitat, that a decision should be made that it is unsuitable until such time as can be positively proved otherwise.

Uhm, in closing I'd like to say that your decision -- to put it in very, very basic terms will mean life or death to hundreds, if not thousands, of antelope; that we are concerned relative to this decision.

I guess it's not so much how large or how small Red Rim, it's that we're at one of those junctures where a decision, a presidence has to be set of what direction, what direction we go in the future.

It kind of reminds me of a comment made by someone irrelative to conservation, he said that, "You're hell to get along with, but you sure make great ancestors." But I would encourage you, ladies and gentlemen, to be courageous in this decision. It might not be popular, but make sure it's right even looking back on it ten or 20 years from now.

I might also bring a comment from President Reagan, I believe it was in his Inaugural Speech he said, "If not here, where? If not now, when?" This is our feeling relative to this Red Rim issue. I thank you for this opportunity.

**JOHN P. ERNST**

MR. ERNST: My name is John Ernst. I hold a Bachelor's and Master's Degree in Wildlife Biology and serve as the Executive Director of the Wyoming Wildlife Federation. I appreciate the opportunity to talk to you today. I have three points I'd like to make: The first is I was concerned about the argument made or alledged this morning that perhaps in 20 years or whatever time that mining might be concluded that technology would have progressed to the state that we could reclaim this land to it's current density and types to support those shrubs for the animals.

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Thank you for your comment.

With all due respect, my interpretation of the law is you don't have the luxury of gambling with this resource; that the law requires you to consider the best technology for reclamation that there is currently available; that you cannot speculate as to what might be available at such time as reclamation might occur.

Secondly, it's been -- there's been a contention made that the Bureau of Land Management considered everything in their original lease decision and in that no new information is available, that contradicts that, that there's no data that contradicts the decision

that the BLM originally made to lease the Red Rim. My response to that is baloney.

In 1981 the BLM District Wildlife Biologist's statement of Red Rim did not agree with the decision to lease Red Rim. It, instead, supported the data and evaluations that Dr. Bunin provided to you this morning that it was not reclaimable and it would severely impact the antelope herds and that the BLM, in deciding to lease Red Rim, went against the recommendations of their own biologists.

Finally, I'll conclude that if letters and cards and phone calls are any indication, then the issue of leasing Red Rim is the single most important issue for the 6,000 plus members of the Wyoming Wildlife Federation, the largest sportsmen and outdoor organization in the State of Wyoming. That's all I have to say. Thank you.

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**BARBARA W. PARSONS**

MS. PARSONS: I'm Barbara Parsons of Rawlins and I'm speaking on behalf of the Wyoming Outdoor Council. The Wyoming Outdoor Council supports the position of the Wyoming Wildlife Federation. In the wanes of the catostrophic antelope losses of the winter of 1983-'84 when most antelope were denied access to their critical winter range, in that area the crucial nature of Red Rim as antelope winter range can no longer be denied as it has been in the past. Expert testimony has been given today by the highly respectable Dr. Alldredge regarding this essential area, why it is critical, why it is unique and what it provides.

Thank you for your comment.

The feasibility of reclamation has also been closely examined. Not only will strip mining cause destruction of wildlife, but reclamation of the area would be slim, difficult if not impossible to achieve. Therefore, if strip mining occurs on Red Rim at this time, critical winter range would be destroyed probably forever, given our present technologies.

The Wyoming Outdoor Council will be submitting written comments to you, but at this point I'd like to make a personal philosophical observation: Man's strongest instinct is survival. This instinct has

lead us to be predators and exploitive, but I submit to you, members of the Council, that our survival to live or to die does not depend on mining Red Rim, but the survival of the antelope population in that area will be at stake if you permit this mining.

Thank you very much for this opportunity to comment.

JOHN KENNY

MR. KENNEY: Mr. Chairman, gentlemen, my name is John Kenney. I'm a real estate broker here in town. You might say generally I support everything that Henry Hewitt said when he addressed you.

The one thing that disturbs me a little bit about this procedure is as a real estate broker I'm very conscious of property rights and it seems to me that's one of our basic fundamental rights in this country. The only time I heard it even mentioned so far was when the attorney for Rocky Mountain Energy mentioned that the issue here could be or must be addressed when they go through the siting procedure, permitting, whatever. It seems to me what we're being asked to do -- or you're being asked to do today is to deny them their property rights without allowing them to go through the full process of the law and I don't believe any property rights can be inhibited unless there's an overriding social reason and I don't believe the antelope override the property rights involved. Thank you.

MR. CROW: Just a moment, sir. Questions?

MR. BERGMAN: Shouldn't someone on the Council respond to that question with respect to -- possibly

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Thank you for your comment.

Terry or you, Mr. Chairman, about what the nature of this procedure is and what happens at each step?

MR. CROW: Well, I think that the Department of Environmental Quality and the Council are constrained by statutes to perform certain functions and invariably property rights can be abrogated. However, the procedures that we are following now and that are followed in other kinds of procedures are said to provide due process and while I -- I understand and have a great sympathy for the position taken that the coal and the right to mine it is, in fact, a property right, still if it -- if the criteria is approved and met requiring a designation as unsuitable for the Red Rim area, then we would have to make it and that does not give you any idea of a preconceived disposition on the part of the Department or the Council, but you are correct. It is a very difficult thing and it's not the -- it's not the kind of ruling that we -- that we like to make. However, we are -- we are forced by the statute to make that kind of determination if the facts clearly demonstrate that that is our duty under the rules and regulations.

MR. KENNEY: Okay. I submit that the -- the problem isn't large enough to warrant depriving people of the property rights, I am against the petition.

**CARRIE B. FRYE**

MS. FRYE: Mr. Chairman and members of the Council and distinguished guests and ladies and gentlemen: My name is Carrie Frye. I received a Bachelor's of Science in Wildlife Management in 1984 and I am here as a concerned citizen, not as a wildlife management student or wildlife manager. The question here is whether the area is suitable for mining and it's importance to renewable resource to the State of Wyoming.

I don't think that this kind of fight or this kind of problem would occur if this area was not so important to wildlife and it's critical winter range. I also believe that good, wise development of our mineral resources is important, but I also feel you cannot do this to an expense of a renewable resource such as our wildlife in our state.

There is a time when we have to step back and say, "Who was here first and whose importance is it?" Sure we need to eat and we need to have our mineral resources to keep us going, but there's a time when a critical winter range is up for question that we need to consider logically the impacts to an area, if it's mined, to these animals.

Thank you for your comment.

I believe that we should develop our mineral resources when and where it is done without impacting large numbers of animals. It has been clearly stated today, and I'm sure will be in the future, that if this area is mined it will greatly impact our renewable resource in this area. Thank you.

**JIM SOUKUP**

MR. SOUKUP: Ladies and gentlemen of the Commission, my name is Jim Soukup and I reside in Rawlins, Wyoming. Thank you for the opportunity to come before you this afternoon to speak on the issue of coal mining in the Red Rim area.

I'd like for you to deny the permit for the petition of the Wyoming Wildlife Federation. I want to reiterate that: Deny the petition of the Wyoming Wildlife Federation for mining coal in the Red Rim area. If you approve the petition, mining in this area will never take place and a natural resource will be locked up forever. The economic prospects and growth for Carbon County and Rawlins today, and looking into the future the next three to five years, is very dismal. If this potential resource is locked up, another economic blow to Carbon County has happened. We can't have that again.

The State of Wyoming, Carbon County and Rawlins have been totally decimated by this last recession and you'd hit us once more. That's not a -- I reiterate again: Not what we need. Ladies and gentlemen, the technology as was stated before, you can't be concerned about whether it will or will

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Thank you for your comment.

not be. I think you have to look at technology. What will happen in the future?

Technology will be developed to recover these lands, to mine this coal. If you lock these resources up it's gone. We'll never be able to get to it. I guess what I'm saying is that I want you, and I strongly urge you, to deny this petition.

Let us have this resource. Let us have economic growth in Carbon County and Rawlins. Thank you very much.

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**ALEX SEMRYCK**

MR. SEMRYCK: Members of the Council: I appreciate the opportunity of being heard. My position is one of opposition to the petition presented to you. I've lived in Rawlins 38 years. I represent no particular group.

I'm merely a concerned citizen, but I feel the -- my thoughts reflect those of many of my fellow citizens. I will not attempt to comment on the expert statements made here today. I speak merely as a person who has profound concern for the future of Rawlins and of Carbon County.

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Many emotional issues have been injected into the testimony and opinions presented to you and if I may, I would like to respond in a similar vain to some of those things because an issue like this must take into consideration feelings and emotions as well as hard scientific fact and I believe some of the facts that were presented are opposite the development.

Thank you for your comment.

I reject, respectfully, the notion that there is anything unique about the terrain and topography of the area under discussion. The landscape there replicates, it's endless throughout our county and throughout our state and certainly throughout the

Washaki Basin. I also reject the proposition that the marginal marketability of those coal deposits at this time is germane to the hearing.

We, and certainly you ladies and gentlemen are not being asked to pass on the state of the market, the state of the economy, the marketability or the need for these priceless natural resources, but drawing on my own experience we're dealing with the future. The fact that there is not an immediate demand for these resources is not going to say the fact that decades hence there will be a crucial need for them.

In the early post-war years I had the opportunity for almost two years to conduct a seismic survey of that portion of the County which lies to the immediate west and southwest of China Butte and Red Rim. It was only almost three or four decades later, the mid-70es, when the oil and gas bearing structures that I worked on, it was only four decades later that they were fully exploited and that was a need that was regarded as essential to national survival.

There's no doubt in my mind that such a need will arise again in the coming years and I plead with you not to make a decision that will impair the accessability of those resources to our children, grandchildren or great grandchildren because I do not exaggerate that resources of that type could be pivotal to the well-being of the United States or certainly to the goal of self-sufficiency in energy.

A statement was also made that, and I may have misunderstood this, that discussion of compromise would not be appropriate at this time. This statement appalls me. This is not a court of law. This is a public hearing and whatever decision you arrive at will be based on reasonable and intelligent compromise. I believe with the more studied presentations made by the expert witnesses such as the gentlemen who presented the BLM's case, embodied the spirit of compromise and I plead with you to take that into consideration. No one's on trial here.

The other emotional issue that was introduced unnecessarily was the repeated use of word survival, as if the fawn of north america would become extinct if you made an unwise decision. It appears to me that these ladies and gentlemen who are petitioning for you to rule that this area is unsuitable for mining are looking for a rallying point or a symbol

which may or may not be admirable, but in the process of attempting to persuade you to make a landmark decision, a symbol to the world of the fact that they have drawn a line here in Carbon County against any further economic development, that that would impair wildlife to any minor extent is unfair, not only unfair but I think cruel in this sense that by making this a symbol of resistance they are toying with a fundamental human quality like men out of work, like undernourished children.

I know I am overdramatizing the situation, but these are very real consequences of what could occur if you took into account such arguments that this is merely a symbol or a landmark. The survival issue, I think, is -- has been overused and over-dramatized.

I leave it to the experts, to your good judgement, to determine whether the survival of these antelope hinges and hinges exclusively on the development of a few thousand acres of land for mining. That argument could be used to stifle all development for all time.

One gentlement suggested that the migratory trails were severely disrupted by construction of I-80. Of course they were, but would anyone say that we should not have built the Union Pacific Railroad or built I-80? The City of Philadelphia is located on what was one time prime white-tailed deer habitat. Do they suggest that a cruelty was inflicted on the white-tailed deer by the construction of Philadelphia?

I'm not trying to overdramatize, believe me, but I do appeal to you to take into consideration the fact that economic development can -- could exist with protection of wildlife. I yeild to no one in my love of our terrain in the fact that my spirit soars also when I see the freedom and grace of the pronghorn antelope, but I do not put that species interest ahead of that of mankind. Thank you.

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**SUE T. HEWITT**

MS. HEWITT: My name is Sue Hewitt and I'm a lifelong resident of Carbon County. As co-owner of the Wise Agency Real Estate and Insurance Company I am fully aware of the need for economic growth in our area. Carbon County has much to offer it's citizens, but we lack a good, sound economic base. We need to provide jobs for our residents or our future residents. It would be a shame to let an area as productive as ours go to waste.

For the past two years over 100 head of antelope and deer have lived in my back yard. Each day my children and I would watch them play. On occasion we would provide them with apples, so, you see, I too am a lover of wildlife, but it is my belief that these animals can thrive around the mines. They have in other places. What makes Red Rim so special that animals can't survive?

More importantly, I am a believer in people. I feel every person has a right to earn a living. What gives us the right to take away someones ability to be productive and earn a living? We need mining at Red Rim. Thank you.

Thank you for your comment.

**ED SMYTH**

MR. SMYTHE: I've got a little more staying power than some of those other fellas. Of course, I'm not working and they are, so I hope you'll understand that. Mr. Chairman, Council, many, many attorneys and litigants, whatever: I am from Rawlins, I'm a retired businessman from Rawlins. I've lived here all my life; my dad did before me. I've been highly interested in the proceedings and I should compliment the Council. I think you've been most patient.

Uhm, there's a few things that just don't seem kosher and I thought I -- I'm not trying to draw it to the attention of the Council, I know that certainly it's more alert probably than I am, but there have been some events presented here, subtle untruths in my mind, conflicts between one group of statistics and another group of statistics.

I think each side may have represented themselves a little strong, but I think the BLM study is done probably with the -- and I've read it, and I betcha a lot of people here haven't, with the most direct application of what's truth and what's false. I was astonished to see the number of visiting dignitaries from outside the community that found time to come

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Thank you for your comment.

and spend in our community to try to sink our coal mine.

Uhm, and that will tell you how my feelings go. I've lived here all my life. I've been inundated with antelope. If you live here you can't give away the meat if you do shoot them. To think that they can be replaced or misplaced in our scheme of things is an error in thinking. If you go out to the coal mines today you'll see the antelope right dowp in the pit and if you -- and on the improved range, and it's been put -- where it's been put back in order you can see more antelope there than there were in the past. So, I would like to mention that in passing.

There have been some figures, just like the critical ones, which I don't really understand, designate that means one in ten will be gone. I think that's a fallacy. I think the Council seems to be asking the right questions.

I would challenge the 6,000 letters. I betcha there were few of them came from Carbon County and few from Wyoming and how did we get those letters? They weren't spontaneous letters, I bet they were in answer to a magazine or newsletter that was sent out by the Wildlife people.

I have no fight with wildlife. I like it, I enjoy it, I like to watch it. I like to eat it sometimes. But, I think we have to put perspective into man and wildlife.

Many of the other things that I intended to say when I became before this group have been well taken care of, I've thought, by the attorneys for both sides. I was happy to see the frivolous nature was put aside this morning and I hope that you can wind up your hearing very soon. I thank you.

## WALTER E. DOBKINS

MR. DOBKINS: Good afternoon, sir. I am not a public speaker so I hope you'll bear with me. My name is Walter Dobkins. I'm the Vice President of the Planning and Zoning Commission in the town of Hanna.

Today I'd like to speak for the Sportsmen's Club in the town of Hanna. I'm also the Vice President of that.

First of all, I would like to offer you this newspaper as of yesterday it was history.

MR. CROW: For the record this is the --

MR. DOBKINS: The Hanna Herald.

MR. CROW: The Hanna Herald, the Wednesday, January 23, 1985 edition and I'm informed that this is the last edition of this newspaper, it has gone out of business because of declining advertisements and the poor economic conditions.

MR. DOBKINS: Yes, sir. I would like to call your attention to the last article at the bottom of the page. Estimates show continued decline in local coal production and there is a schedule here, 1984 we're mining 3,000,045 tons; 1985 it would be about 3 million tons; 1986 will be 2 million tons; 1987 is a million and a half tons; 1988 is a million and a half ton.

A

A Section IIIi8 has been revised.

Now, this -- I'll read you the first paragraph: The future of the coal mining industry of Carbon County looks dismal. Based on a report from the Wyoming Department of Economic Planning and Development, D-PAD, and the rest of the article is unimportant at this time. Uhm, naturally I'm speaking on behalf of the Sportsmen's Club.

We are avid hunters, avid fisherman and so forth but it's hard to stand here and tell you that we like to hunt and we like to fish whenever we don't have a place to work and the last five years has gone something like 600 people laid off and furloughed permanently from the coal mines in the Hanna area. I work for the Arch Mineral Corporation, I am a union employee, I'm not a company man.

January 7th of this year we laid off 12 more people at the mine I work at. Medicine Bow Coal Mine, as you know, is operating at approximately 10 percent of its capacity. Arch Seminoe Number 1 is in the reclamation phase. Sometime this year it will be completely abandoned.

There is still coal in that area. There is still coal at the Medicine Bow Coal Mine. We hear rumors that there may be another layoff at the Arch Seminoe Number 2 mine. I don't know. That's just a rumor.

Carbon County Coal Mine, which I suppose right now in Wyoming is the only underground mine that is operating, I think beyond the rumor at this point in time that they're going to lay off 60 percent of their people in the near future. How bad do we need another coal mine?

I have seen young people come into Hanna, I've lived there for 18 years. I have worked in the coal mine for the last 18 years. It makes your heart ache to see the young people come in, they've got to have dependable transportation, they have got to have a place to live which means if there's no place to rent, which very few places are for rent, you have to either buy a mobile home or buy a house.

You see these people come in, I will cite an example of Carbon County Coal: They told the employees that they hired that they would be there for at least 20 years. They even went to the point of the people that bought houses they would make the down payment on those houses and the first part of them, there's two phases of this I'm talking of the first phase, they paid something like $4,500.00 down so these people could get into housing, bring their families here, start a life and now if they get laid off, which they probably will, they'll be going down the road.

They probably bought a car or a vehicle, I should say, from one of the local car dealers in the area. It's probably not paid for, probably the dealer got his money but probably the bank's not gonna get his and then the houses are gonna sit until things pick up again, if they do, but according to this newspaper article can we wait for 1988 or 1990 until things start picking up again and it makes me wonder how bad we need another coal mine. I think we need to do something about the coal mines that we already have.

Somewhere along the line our state government needs to take a hand and do something to keep the people working at the places that they're already working at. That's my belief.

Now, like I say, gentlemen, I'm not a public speaker but in closing I guess I would say that I am opposed to another coal mine being put in so that would put me on the side of the antelope and my last thing I would like to say is that I am not being paid to be here. I came on my own accord and I wonder how many people that are for the new coal mine can say that they're not being paid. And I thank you all very much.

THE HANNA, WYOMING
HERALD

Volume 6, No. 41 Wednesday, January 23, 1985 25 cents

# Subsidence public hearing next month

## Underground video tapes will be shown

HANNA — A public hearing to present study results of possible mine subsidence problems in the Hanna area will be held next month.

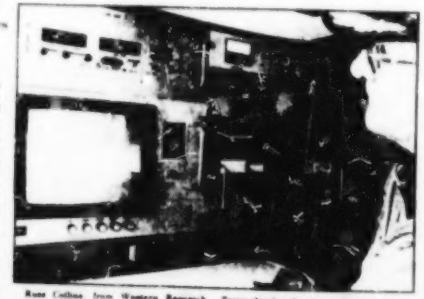
The Wyoming Department of Environmental Quality will conduct the meeting to be held at 7:30 p.m. Wednesday, February 13 at town hall. At the meeting, results from the study on mine subsidence by Midwest Mining Co. of Casper will be released to the public. Also, officials from Midwest Mining will announce its recommendations for possible means of subsidence control during the mining.

Much of the town of Hanna is built over abandoned underground coal mines operated by the old Union Pacific Coal Co. There have been several instances of mine subsidence in the past and Midwest Mining recently concluded their explorations into the abandoned mines.

Under contract from the DEQ, Midwest Mining drilled about 12 holes into mined areas underneath Hanna. As part of the data collection conducted by the engineering firm, a video camera was lowered into the holes to study conditions below the surface. According to Midwest Mining officials video tapes from the study will be shown at the hearing.

DEQ officials say they will take a position at the hearing on what action they recommend to curb possible future subsidence.

The public is invited to attend the meeting.



Rose Collins from Western Research Institute of Laramie watches the monitor as a video camera was lowered into exploratory holes around Hanna recently. Tapes showing the view underneath Hanna will be shown at the DEQ public hearing next month.

## Cost of Carbon County government average for Wyoming

CHEYENNE — The cost of maintaining the Carbon County government was not below the average in Wyoming and rea according to the Wyoming State Examiner.

According to the annual report prepared by the examiner's office, the cost of county government during the 1983-84 fiscal year in Carbon County was $299 per resident, just below the statewide average of $297. Excluding federal revenue sharing funds Carbon County spent $6,511,318 to provide government services to its residents. 21,846 people according to the 1980 census.

But while the population of Carbon County is declining due to continued slump in the local economy, the cost for county government was on the increase. Excluding revenue sharing money expenditures in the county government increased by $430,000 over the previous fiscal year, according to the report.

The largest single expense for Carbon County is the road and bridge department, amounting to $1,810,000 during fiscal year 1983-84.

What county in Wyoming spends the most money per resident? Campbell County, according to the report, spent $690 per citizen last fiscal year with Teton County a close second at $686.

Albany County spent the least amount per resident, $113.

## Estimates show continued decline in local coal production

CHEYENNE — The future of the coal mining industry in Carbon County looks poor at best, based on a report from the Wyoming Department of Economic Planning and Development (DEPAD).

According to the 1984 Wyoming Mineral Outlook published annually by DEPAD, coal production in Carbon County will continue to decline through 1987 when only 1.45 million tons is expected to be produced.

Coal production was down nearly 600,000 tons in Carbon County in 1985. The soft coal market, along with the opposite and difficult of mining in Carbon County combine to make it likely that coal production in the county will show a decrease for the next several years, the report states.

While 10.6 million tons of coal were mined from the Hanna Basin (the only coal producing area in Carbon County) in 1979, production totals have steadily decreased since then.

Production in Carbon County in 1986 fell to 9.7 million tons, 8.5 million tons in 1987, 5 million tons in 1992, and 4.7 million tons in 1993.

According to the DEPAD report, estimates of Carbon County coal production for the next five years are:

- 1984 — 5.45 million tons
- 1985 — 2.49 million tons
- 1986 — 1.58 million tons
- 1987 — 1.45 million tons
- 1988 — 1.45 million tons

## Herald to end publication

HANNA — Volume 6, No. 41 will be the last issue of the Hanna Herald.

Herald publisher Carl Berger announced Tuesday the paper will cease publication after this issue, citing the poor local economy and declining advertising revenues as reasons for closing up shop.

Like most businesses here in Hanna, we've been just hanging on for a long time. The layoffs over the past two years have taken their toll, you can tell by the decrease in the number of pages we've been printing," Berger said.

To be realistic, I can't see any positive changes in the economy in the near future and we can't afford to continue."

Berger said he realized the paper had been shrinking in size during the past year and the decrease of the smaller space available for news the paper's quality was declining. I decided it was time to let it die rather than continue putting out an inferior product," he said.

The Herald subscription list has been turned over to the neighboring Saratoga Sun, Berger said, and Herald subscribers will receive the Sun after this week. Not having a local paper will be a letdown," Berger said, "but with the Sun, people in Hanna will be able to keep in touch with school district news and sports."

The Herald office was also home for the local Pacific Power and Light Company station. According to PP&L officials in Rawlins, a search for a new pay station location is underway and will be announced as soon as it is finalized. In the meantime, Hanna PP&L customers can continue to pay their bills at the Herald office at 610 Front St.

The Herald began publishing in April of 1979, under the direction of founder and publisher Dave Roberts. The Bergers began working on the paper in May of 1980 and purchased it in October, 1980.

Circulation of the weekly paper grew from 180 in 1980 to over 1,100 in 1985 when the Herald was awarded second place in small weekly general excellence by the Wyoming Press Association.

At the end, the Herald was distributed to 680 people.

**BILL WALKER**

MR. WALKER: Council, and all you out-of-state people, welcome to Wyoming. I would like to point my remarks to the Game and Fish of Wyoming and relate just a little experience I've had the last few years, particularly last year. In coming from Laramie to Rawlins, even during the time that the Red Rim controversy was on, along the highway adjacent to the refinery was four or 500 antelope all on the grounds of the refinery and on the right-of-way on Highway 80 there was an additional two to 300, so when I got to Rawlins I called the Game Warden: No answer. So I called the Game Warden at Saratoga and I got a hold of the Game Warden's wife and told her what was going on, that there was two or 300 antelope on the right-of-way, and before the next day they'd all be killed if something wasn't done. She says, "I'll call Cheyenne."

Now, the next day I went down the same route, there's 100 antelope left, the rest are dead. No one came out to see. The following day they were all gone and the Highway Department hauled them away with dump trucks.

Now, if you want to find out, ask the Highway Department. They did it. Now why, if they are so -- they think it so damned important for a little area,

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Thank you for your comment.

a few hundred acres of Red Rim, why don't they take care of hundreds right here under their noses? I'd like a response from the Game and Fish.

That's all I have to say, but I sure would like a response from Mr. Dexter or anybody from the Game and Fish.

**TOM DOUGHERTY**

MR. DAUGHERTY: Thank you. Members of the Council, uhm, my name is Tom Daugherty. I come to you today in no official capacity. I come really to speak of my own involvement with Red Rim which was considerable, at least peripherally, since 1979 and have been a resident of the state of Wyoming until four years ago, until what my wife determined was a month of mental incapacity, I'd decided that I'd accept employment with the National Wildlife Federation in Washington, D.C. I wasn't really prepared to make a statement and I, having been involved with the issues relating to Red Rim for such a long period of time, I became extremely confused in this hearing and felt it incumbent on myself to try to relate to you what I really think the core issues are and the responsibilities that I hope rest with you folks or some Wyoming agency before mineral development is allowed on Red Rim.

I don't come to you as a biologist or a botanist or an economist and certainly not an attorney. The one thing that I haven't seen demonstrated in the hearing process is my understanding of -- of what makes Red Rim such a fuss. I mean, why are these people involved in it, for whatever reason? Certainly

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Thank you for your comment.

from the people that are concerned with the antelope, and I couldn't miss in that category was that in 1979 I asked myself those questions and I searched from every possible source I could find, whether it was Game and Fish, BLM, Fish and Wildlife, people that hunted in the area as I have, and the point that has failed to be brought out in this hearing is that Red Rim is clearly identified as critical wildlife habitat and the definition of critical means that it's essential to maintaining the levels of animals that are using that site.

Red Rim is an unique critical wildlife habitat. In other words, the Baggs -- in the Baggs Herd Unit there's Muddy Gap, which has been identified as critical winter range, there's a portion of it on China Butte which was leased for coal mining. Red Rim has an unusual characteristic and that characteristic is that the antelope that have used it for the years that they've been in the Carbon County area rely on Red Rim during critical winters. Certainly in winters that have heavy snowfall.

So, when the snows start falling, they go to Red Rim. They start migrating towards Red Rim. Once they're there, there's no place else for them to go. To suggest that you could encourage wildlife to go to another area, what are you gonna do? Give them a frontal lobotomy? Place a microchip in their head and say, "When critical winter comes you're gonna go somewhere else"? They're not gonna do that and if you have started a mine project at Red Rim and depending on the success of your reclamation, what if you get into that mine and you have to determine that -- that's what the argument that -- that the people -- the reclamation experts have said, what if you get into a mining process and it's 18 years down the road and the reclaimed area is still not ready to be used by wildlife habitat and you have a critical winter and the antelope come there to use it and it's not available?

They're not going to go to Muddy Creek, they're not gonna go to the areas that were pointed out on that map because they can't go there. This thing is an island in the middle of the stream because you're there -- you're there and if there's no browse, if there's no adequate browse for them, you're gonna lose them and the Department of Environmental Quality, just by their name, suggests that that is something that somebody has to accept that responsibility for, somebody has to make that determination.

I could go on and on about shrubbery, vegetation standards, but there's a point in time when you have to evaluate, you have to determine, some have suggested, "Well, let's do it at the mine permit stage. That's applicable." Why in the hell would you want to do it at the mine permit stage when you know once it's leased then all of these arguments are no longer germane?

I'm done. If you have any questions that I could help you answer, you know, I think that there are ways and I'm not at liberty to discuss the involvement that we've had, there may be a way that we can -- that we can come to a compromise on this, but certainly part of it is gonna have to rest on the determination. If we mine that damn mine are we going to be able to allow antelope to come back on there during a critical winter? Thank you.

## C. WRITTEN COMMENTS SUBMITTED AT THE PUBLIC HEARING

1-23-85

As a resident of Rawlins for the past 30 years, I am very much opposed to any coal mining in the Red Rim area.

There is still a lot of coal to be mined in the Hanna area. The problem seems to be that there is not a market for coal, so it does not make any real sense to start another coal mining operation.

Our wildlife suffered enough last Winter because of the Red Rim situation. A coal mining operation in the Red Rim area would mean a permanant loss of habitat, less wildlife, fewer hunters and the loss of this revenue.

Our wildlife in Wyoming is a part of our heritage, and we must do everything that we can to preserve this heritage, not only for ourselves, but also for our children.

Sincerely yours,
Don G. Gabelson
Don G. Gabelson
1111 9th Street
Rawlins, Wyo 82301

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Thank you for your comment.

Century 21
BABE ROGERS REALTY
400 W. Cedar - Box 1132
Rawlins, Wyoming 82301
(307) 324-2121

1-[illegible]-95

Gentlemen;

My name is Jimmy Harris and I live here in Rawlins.

I did not have the opportunity to hear all of the presentations, so I can only express some of my own observations without the benefit of the expert testimony.

We have all seen the progress of reclamation in the surrounding mining projects in the county. A lot of times forage is better than it was before the mining process.

Draglines, roads and antelope have managed to co-habitate very well. These animals graze around the pits, equipment and buildings all of the time.

The Game & Fish Dept. admitted last year that we had around 100,000 more animals in the state than we could support. They were unable to sell the licenses to harvest these animals and nature took her course with the rough winter. This is a fact that livestock people have had to contend with forever.

Antelope died all over the state, not just Red Rim where all of the publicity was centered.

Carbon County is one of the most depressed counties in the western United States. Any chance of any economic boost is a vital part of our survival.

I have read that the Wildlife Federation has said that Red Rim is a marginal coal producing area. I cannot believe that any prudent businessman would invest millions of dollars in a project that he believes to be marginal.

The only healthy business that I know of in this county is "Government". Even this will not remain in it's present condition if we keep reducing the tax base.

Thank you,

Jimmy Harris

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Thank you for your comment.

1/24/85

I wish to state my opposition to the possible coal leasing of land in the Red Rim area.

The reason is simple enough – There isn't any need for it. There are enough coal mines now open with reserves to last a hundred years. They can't even operate now due to lack of demand. They can't employ many on any miners now due to lack of demand.

Areas like Red Rim should be reserved for emergency only. At some future time if all other sources of mineable coal were gone, then and only then destroy critical habitat for coal mining. Don't do it now so a few can make some quick money.

We have so much land for coal mining, but so little wild life habitat.

Stan Rothenberger
200 El Rancho
Rawlins, Wy. 82301

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Thank you for your comment.

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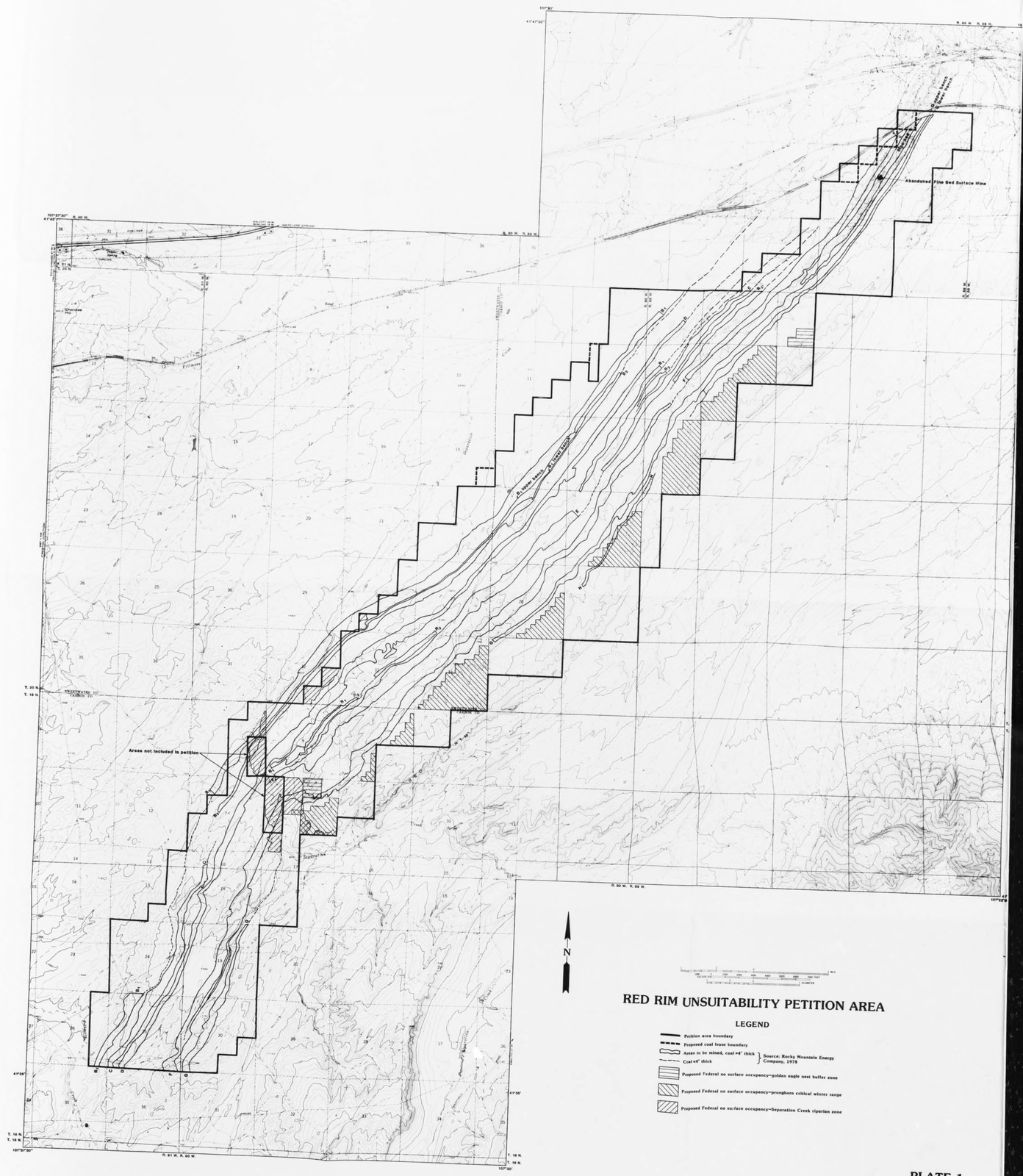


## RED RIM UNSUITABILITY PETITION AREA

### LEGEND

- Petition area boundary
- Proposed coal lease boundary
- Areas to be mined, coal >4' thick
- Coal <4' thick

Source: Rocky Mountain Energy Company, 1978

- Proposed Federal no surface occupancy–golden eagle nest buffer zone
- Proposed Federal no surface occupancy–pronghorn critical winter range
- Proposed Federal no surface occupancy–Separation Creek riparian zone

**PLATE 1**